Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Policies Regarding Mobile Spectrum Holdings	)	WT Docket No. 12-269
	)	

COMMENTS OF AT&T INC.

David L. Lawson
James P. Young
C. Frederick Beckner III
Sidley Austin LLP
1501 K Street, N.W.
Washington, D.C. 20005
(202) 736-8000

Michael P. Goggin
Gary L. Phillips
Peggy Garber
AT&T Inc.
1120 20th Street, N.W.
Washington, D.C. 20036
(202) 457-2055

Attorneys for AT&T Inc.

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AT&T Inc. ("AT&T") respectfully submits these comments in response to the Commission's September 28, 2012, Notice of Proposed Rulemaking in WT Docket No. 12-269.[1]

INTRODUCTION AND SUMMARY

In 2001, as mobile data services were being launched, the Commission adopted a forward-looking spectrum policy framework that has facilitated the growth of one of the most successful and competitive marketplaces in the world. Recognizing that competitive bidding and freely-functioning secondary markets allow spectrum to flow to its highest-valued uses, the Commission abandoned rigid, "bright-line" spectrum aggregation caps and replaced them with a safe harbor screen and flexible, case-by-case consideration of proposals to exceed the screen. This basic framework – as originally conceived – strikes the appropriate balance between regulatory certainty (by assuring licensees that spectrum accumulations within the safe harbor will be approved) and regulatory flexibility (by ensuring that the Commission's rules do not punish success and innovation and can accommodate *any* spectrum assignment that does not pose any true risk of foreclosing competition).

[1] Notice of Proposed Rulemaking, Policies Regarding Mobile Spectrum Holdings, WT Docket No. 12-269, FCC 12-119 (rel. Sept. 28, 2012) ("*Notice*").

The benefits of this balanced, consumer-focused policy are obvious and dramatic. The U.S. wireless marketplace is the most dynamic and innovative in the world. The U.S. "lead[s] the world in deploying the next generation of wireless broadband networks – 4G LTE – at scale. Today [the U.S. has] 69 percent of the world's LTE subscribers and every expectation to maintain 4G leadership for the foreseeable future. The United States is the global test bed for LTE apps and services."[2] "[M]obile innovation is estimated to have created 1.6 million U.S. jobs over the past five years" alone.[3] This innovation and investment is both a result and a reflection of the intense competition fueled by the Commission's market-oriented spectrum policies. A decade after the Commission abandoned spectrum caps in favor of a safe harbor regime, the U.S. wireless industry is intensely competitive – far more so than when the caps were lifted – and one of the least concentrated in the world: 9 out of 10 Americans are currently served by at least five different providers.[4] U.S. consumers have reaped the bounty of higher quality and more favorable pricing even as they use more mobile services than ever before.[5]

Despite the enormous consumer benefits that have resulted from the safe harbor screen, recent and proposed changes in the way the screen is applied are creating marketplace uncertainty and leading to arbitrary results that threaten to reduce competition, investment, and

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[2] Remarks of FCC Chairman Julius Genachowski: Winning the Global Bandwidth Race: Opportunities and Challenges for the U.S. Broadband Economy, Vox Media Headquarters, Washington, D.C. ("Sept. 25, 2012 Chairman Genachowski Remarks").

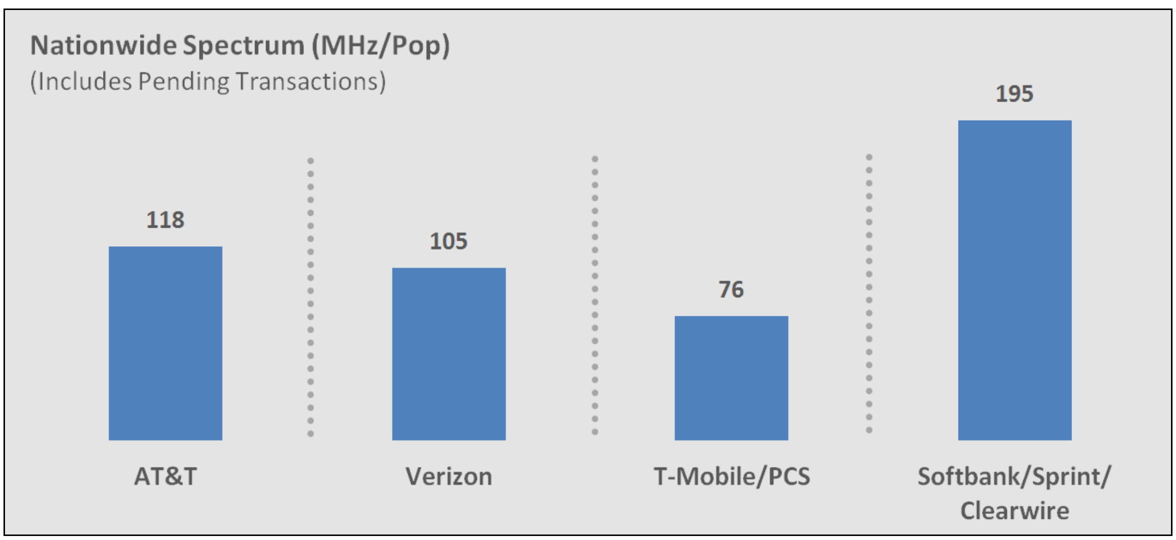
[3] *Id.*

[4] *See, e.g.*, Fifteenth Report, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993*, 26 FCC Rcd. 9664, ¶ 45 (rel. June 27, 2011) ("*Fifteenth Wireless Competition Report*").

[5] CTIA, Press Release, *Consumer Data Traffic Increased 104 Percent According to CTIA-The Wireless Association Semi-Annual Survey* (Oct. 11, 2012), at 1, http://www.ctia.org/media/press/body.cfm/prid/2216 (last visited Nov. 26, 2012) ("CTIA Press Release"); *see also* Reply Comments of CTIA – The Wireless Association, *The State of Mobile Wireless Competition*, WT Docket No. 11-186, at 5 (April 30, 2012).

innovation. Part of the problem is that the Commission has no regular process for updating the screen, and providers cannot be sure from one proceeding to the next what spectrum the Commission will include in the screen. The lack of predictability is exacerbated by indications that the screen is becoming a tool to manage competitive outcomes and boost the prospects of individual competitors. Most notably, the screen continues to exclude a substantial amount of spectrum that the Commission's own Report to Congress recognizes as usable for mobile wireless service and that, in fact, *is* being so used today, including much of the spectrum controlled by the nation's largest spectrum holder, Sprint/Clearwire.[6] Sprint controls an average of almost 200 MHz of spectrum in the top 100 markets, and as shown in Figure 1, almost double that of the next largest spectrum holder:

Figure 1. Nationwide Spectrum (MHz/Pop)[7]



[6] *Fifteenth Wireless Competition Report*, Table 26.

[7] The AT&T figure includes all pending transactions (as of Oct. 31, 2012). The Verizon and T-Mobile figures do not include AWS sales from Verizon to T-Mobile as a part of the SpectrumCo purchase. The T-Mobile figure includes the spectrum from the proposed MetroPCS transaction. The Sprint figure includes Clearwire spectrum and Sprint's limited WCS holdings.

And yet, the devolution of the Commission's spectrum aggregation screen has led to a topsy turvy regulatory environment in which it is the smaller spectrum holdings that AT&T and Verizon use to serve their larger customer bases that are viewed with concern, and spectrum rich competitors like Sprint feel free to advocate spectrum policies designed to hobble competitors that are experiencing greater marketplace success.

The predictability of the Commission's framework has been further undermined by the fact that the safe harbor is no longer treated as such. Recent orders have suggested that the Commission may consider "special circumstances" for challenging even spectrum aggregations that do not exceed the screen. And the Commission has signaled interest in still further changes, such as giving greater weight in the spectrum screen to sub-1 GHz spectrum, even as one of the chief proponents of such arbitrary weighting schemes (T-Mobile) has conceded through its own actions that it prefers higher-band spectrum when given the choice and now boasts that its acquisition of MetroPCS' high-band spectrum (coupled with the high-band AWS spectrum that it seeks to acquire from Verizon) will enable "broader" and "deeper" LTE deployment.[8]

It is imperative that the Commission correct these failings and take steps to return the screen to its proper consumer welfare focus. To that end, the Commission must adopt clear rules of the road that identify both the types of transactions that raise no competitive concerns and the factors the Commission will consider for transactions that are subject to additional review. And those rules must be properly focused on allowing market forces to function to the benefit of consumers, not thwarting those forces to protect individual competitors.

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[8] Deutsche Telekom AG and MetroPCS Communications Inc., Description of Transaction, Public Interest Showing, and Related Demonstrations, *Applications of Deutsche Telekom AG, T-Mobile USA, Inc., and MetroPCS Communications, Inc. for Consent to Transfer Control of Licenses and Authorizations*, WT Docket 12-301, at iv (Oct. 18, 2012) ("T-Mobile-MetroPCS Public Interest Showing").

Fortunately, only a few simple adjustments are required to restore predictability and rationality to the Commission's framework. *First*, the Commission should update the screen to include *all* of the available spectrum that is "suitable" for mobile wireless services. Most prominently, the Commission should correct the most glaring of these omissions by including the entire 194 MHz of BRS and EBS spectrum held mostly by Sprint/Clearwire, rather than the mere 55.5 MHz the Commission has included to date. It is undisputed that Sprint exercises "de jure" control of Clearwire,[9] and their BRS and EBS spectrum is plainly both suitable and available for mobile wireless use, as they confirm when they tout the "breadth" and "depth" of their leading spectrum position to investors.[10] None of the reasons the Commission has previously given for excluding the vast majority of this spectrum withstands scrutiny. The transition issues associated with this spectrum have long since passed, and each of the other factors that have been proffered for treating BRS/EBS differently applies to other mobile wireless spectrum that the Commission does include in the screen. The Commission should also conduct annual rulemakings to update the spectrum screen inventory.

Second, the Commission should reaffirm that the "safe harbor" provided by the screen is truly safe – *i.e.*, that the Commission will not entertain spectrum aggregation-related challenges to any proposed spectrum acquisition that does not exceed the safe harbor level. The Commission should also make clear that its case-by-case analysis of proposals to exceed the safe harbor level in any market will remain tightly focused on whether the spectrum available to competitors and potential competitors remains sufficient to enable robust facilities-based

[9] Sprint Nextel Corp. and Softbank Corp., *et. al.*, Public Interest Statement, IB Docket Pending, at 9, 29-30 (Nov. 15, 2012) ("Sprint-SoftBank Public Interest Statement").

[10] *See, e.g.*, Clearwire Corp., *2011 Annual Report*, at 14 (Feb. 16, 2012) ("Clearwire 2011 Annual Report"); Erik Prusch, President and CEO, Letter to Shareholders, *2011 Annual Report*, at 2 (Feb. 16, 2012), *available at* http://corporate.clearwire.com/annuals.cfm.

competition to continue. This process should not result in “conditions” that have no link to any legitimate spectrum aggregation concern.

The Commission’s case-by-case analyses should also be informed by the reality that today’s screen, which is set at about one-third of suitable and available spectrum, is almost certainly too low and discourages transactions that would promote the public interest by putting spectrum to its best and most valuable uses. The Commission’s screen threshold of roughly one-third of the available spectrum dates back to a time when the wireless industry was nascent and there were only two facilities-based competitors in each market. Under those circumstances, the Commission was concerned that it would be relatively easy for the incumbent carriers to obtain new spectrum that became available and thereby prevent new entry. But there is no basis upon which the Commission could rationally equate the risk of foreclosure *today* to the risk of foreclosure at the time of the initial PCS auctions. In today’s far more competitive wireless marketplace, a foreclosure strategy would be virtually impossible to implement. There are multiple facilities-based competitors with substantial spectrum holdings. Those competitors, large and small, compete aggressively for new spectrum when it is available at auction or in secondary markets. Moreover, the high cost of new spectrum, coupled with strict Commission build-out requirements, ensures that, even if it were theoretically possible to cripple competition through spectrum acquisitions, it would be prohibitively expensive to do so. In this environment, it is simply not realistic to assume that any holding of more than a third of the available spectrum in any market may create a risk of market foreclosure.

Beyond that, today’s screen rests on the faulty logic that all providers have equal spectrum needs in every market. In reality, more established providers may need more spectrum to support larger customer bases that are using multiple generations of technologies, whereas newer entrants can compete successfully with far less spectrum by leap-frogging older technologies altogether and focusing on more spectrally efficient state-of-the-art services. With Clearwire set to use its vast spectrum holdings to offer LTE on a wholesale basis in traffic "hot spots" across the country[11] – and with SoftBank infusing billions of dollars of capital into Clearwire's parent, Sprint[12] – the suggestion that any provider or providers could foreclose competition by acquiring one-third of the available spectrum in a market is simply untenable.

The measured changes outlined above would be fully in keeping with Chairman Genachowski's recent acknowledgement that the Commission's role in fostering wireless competition and innovation is "vital" but "limited" and requires a "light touch."[13] Unfortunately, however, over the past few years numerous parties have argued for far more radical forms of "heavy touch" regulation, which together seek to put every aspect of the current spectrum aggregation framework back into play. These proposals do not seek to solve any actual problem, but are merely attempts to find some rationale for measures that are designed to hobble particular competitors in the marketplace for the benefit of others. Adopting them would do grievous harm to the wireless marketplace.

The suggestion that the Commission should switch back to a "bright-line" spectrum cap approach is the most starkly inappropriate of these proposals. Although, as noted, there is room for improvement in the way the spectrum policy framework is currently *applied*, it would be a

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[11] Erik Prusch, President and CEO, Clearwire Corp., Operator Keynote at 4G World: Clearwire, The 4G Disruptor (Oct. 29, 2012), *available at* http://www.4gworld.com/chicago/2012/presentations/plenary-sessions.php ("The Clearwire 4G Disruptor Presentation").

[12] Sprint-SoftBank Public Interest Statement at 1 ("SoftBank will invest approximately $12.1 billion to purchase shares from existing Sprint shareholders and will invest an additional $8 billion directly in Sprint.").

[13] Sept. 25, 2012 Chairman Genachowski Remarks, at 10.

gross overreaction to go back to a hard spectrum cap that eliminates all flexibility in the name of predictability. As Professor Katz and Dr. Israel explain – and as the Commission itself correctly concluded ten years ago[14] – a spectrum cap inflexibly punishes innovation and investment by preventing carriers from efficiently expanding capacity to meet increased demand. Providers that are investing in broadband networks will often need more spectrum as their services succeed in the marketplace. Such investment should be rewarded and encouraged; there is no sound justification for throttling the growth of successful firms that are investing to provide high quality services to consumers. By the same token, speculators that hold spectrum but do not invest on a timely basis should face consequences.

A spectrum cap, by precluding spectrum transfers that would promote the public interest, would force providers that are willing to invest either to forego capacity expansion and service quality improvement or to pursue more expensive, less efficient, and less effective means of addressing their capacity needs, in effect placing a thumb on the scales of competition. The result would be less investment, less competition and less innovation. And such an approach would be all the more harmful because a single rigid cap could not possibly reflect how much spectrum each carrier needs to serve its customers in a rapidly changing marketplace, let alone account for differences among geographic markets.

The various proposals to weight spectrum differently *within* the spectrum screen or to create new band-specific limits are also meritless. These proposals come in many flavors – some propose “value-weighting” based upon relative book values, others propose auction prices, others suggest some measure of market value, and still others insist that the Commission must

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[14] *See* Report and Order, *2000 Biennial Regulatory Review – Spectrum Aggregation Limits for Commercial Mobile Radio Services*, 16 FCC Rcd. 22668, ¶ 6 (rel. Dec. 18, 2001) (“*Second Biennial Review Order*”).

count spectrum of different frequencies differently in measuring spectrum aggregation. All of these proposals – even if they could be actually implemented – are completely at odds with the purposes of the Commission's spectrum aggregation policy, which has always been properly focused on whether the acquiring party would gain enough of the available spectrum *capacity* to threaten the robust competition that currently exists. Because the per MHz data-carrying capacity of a cell is the same for all of the relevant spectrum bands, the Commission's current spectrum screen correctly weighs all spectrum equally.

Even apart from this disconnect between the proposals and the purposes of the spectrum screen, there is no sound basis for the Commission to weight spectrum by differences in propagation characteristics, deployment costs or market value, because the screen and the marketplace *already* account for these differences. The existing screen, which focuses on identifying the spectrum that is "suitable" and "available" to provide mobile wireless services, includes only spectrum that has the propagation characteristics suitable to provide mobile wireless services. And, the marketplace already accounts for any differences related to relative deployment costs. To the extent it costs more to deploy higher-band spectrum (and all else is equal), higher-band spectrum will fetch lower prices, equalizing the costs of low band and high band networks. Given that marketplace valuations already reflect any such cost differences, it would make no economic sense for the Commission to count those market differences again in its spectrum screens – effectively forcing the holders of low-band spectrum to pay twice and artificially restricting the ability of such carriers to obtain needed spectrum.[15]

To be sure, different spectrum bands have different characteristics that make them relatively more or less attractive to a particular provider in a particular location. But there is no

[15] Mark A. Israel and Michael L. Katz, *Economic Analysis of Public Policy Regarding Mobile Spectrum Holdings*, ¶ 91 (Nov. 28, 2012) ("Katz-Israel Decl.") (Attachment A).

categorical basis upon which the Commission could classify some spectrum bands as inherently superior to others that are suitable for mobile wireless services, much less translate that purported distinction into a defensible change to the spectrum screen. Indeed, carriers often prefer to use *high* band spectrum. For one thing, high band spectrum can be superior to low band spectrum for network "densification" because the propagation characteristics of low band spectrum can cause greater inter-cell interference as cell sizes decrease. T-Mobile's recent publicly-stated preference for high band (AWS) over low band (700 MHz) spectrum underscores this point and highlights how arbitrary it would be for the Commission to assign different screen "values" to low band and high band spectrum.[16]

Nor should the Commission tamper here with geographic and product market definitions. The relevant geographic market for assessing spectrum aggregation can only be local; spectrum in Chicago cannot be used to provide service in New York. It makes no economic sense to create some sort of "national" spectrum limit, because average national spectrum holdings cannot answer the question of whether a proposed spectrum acquisition will foreclose effective competition in any particular area. Similarly, there is no basis for defining the product market for these purposes any more narrowly than mobile wireless services. Regardless of whether voice and data services could be thought of as different *retail* markets, that has no relevance to the Commission's spectrum aggregation policies, which are focused in the *input* market for spectrum. Spectrum as an input is perfectly fungible as between voice and data services.

The Commission should also reject calls for new regulation of the remedies for addressing proposed spectrum accumulations that, upon case-by-case review, are determined to

[16] *See, e.g.*, T-Mobile USA, Inc. Ex Parte, *Applications of Cellco Partnership d/b/a/ Verizon Wireless and SpectrumCo LLC and Cox TMI, LLC For Consent to Assign AWS-1 Licenses et. al.*, WT Docket 12-4, at 10 (May 15, 2012); T-Mobile USA, Inc. Ex Parte, WT Docket 12-4, at 1 (June 27, 2012); T-Mobile USA, Inc. Ex Parte, WT Docket 12-4, at 2-4 (July 27, 2012).

pose a real foreclosure threat in one or more local markets. The Commission has long recognized that the acquiring carrier should be permitted to address competitive concerns by divesting sufficient spectrum to bring its holdings in the affected markets below the level determined to be excessive. As Professor Katz and Dr. Israel explain, allowing the licensee maximum discretion to dispose of "excess" spectrum in the secondary market is by far the most efficient way to ensure that the spectrum will be allocated to its highest valued use, but those public interest benefits can be obtained only if the Commission does not place artificial limits on the provider's discretion. So long as the divestiture solves the spectrum aggregation concern at issue, there is no basis for the Commission to become involved and try to direct the divested spectrum to one use or another. Nor should the Commission be involved in deciding the particular band(s) of spectrum that the licensee must divest to come into compliance. Allowing providers to rationalize their spectrum holdings *improves* spectral efficiency and benefits large and small providers alike, and the Commission's spectrum aggregation policies should not prevent carriers from "trading up" through auction or secondary market purchases to spectrum that is a better fit for their networks or business plans.

For similar efficiency reasons, the Commission should not limit participation in auctions *ex ante* on the basis of concerns that spectrum aggregations large enough to threaten foreclosure may result. If a winning bidder's acquisition of new spectrum would bring its total holdings in a market to a level that is determined to threaten competition, that licensee should be allowed to choose which spectrum it will divest to remedy the anticompetitive harm. Flexibility in this regard is especially important as it relates to the upcoming broadcast television incentive auctions. Under the Spectrum Act, if the reverse and forward auctions do not clear certain thresholds, the entire auction may fail (and with it the funding provided for important public safety goals). Limiting participation in the forward auction *ex ante* on the basis of speculative spectrum aggregation concerns that, if realized, could be fully addressed through *ex post* divestitures of other spectrum would significantly increase the chances the entire auction will fail.

Finally, AT&T supports the Commission's proposed codification of attribution rules, but questions whether the Commission can support and defend a rule that attributes non-controlling minority interests of as little as 10 percent: it is highly unlikely that such a small interest could give an investor even *negative* control over spectrum acquisition decisions of another provider. AT&T agrees that the new spectrum aggregation rules should not be applied retroactively to require a provider with existing spectrum holdings that would exceed the safe harbor screen after attribution to defend or divest the "excess" spectrum. It would be patently arbitrary, however, to apply any "grandfathering" of existing holdings to the evaluation of *future* transactions. Going forward, any new attribution rules must be applied to all carriers on a competitively neutral basis.

I. THE COMMISSION SHOULD RETAIN AND REFINE THE CASE-BY-CASE APPROACH, AND IT SHOULD REJECT CALLS FOR A SPECTRUM CAP.

There is no justification whatsoever for reintroducing an inflexible spectrum cap. Indeed, the Commission should be asking whether any spectrum cap *or* screen is necessary at all, given how unlikely it is that any competitor could amass so much spectrum that it could impede competition in the context of today's wireless marketplace. But if spectrum aggregation is to be regulated, clear rules of the road that establish a true safe harbor and economically grounded case-by-case review of proposals to exceed the safe harbor level best promote competition and consumer welfare.

Today's marketplace uncertainty is not a product of the safe harbor/case-by-case approach itself but of uncertainty as to *how* that approach will be *applied*. Accordingly, the

Commission need not and should not fundamentally change the current framework by resurrecting anachronistic spectrum caps or similar schemes that discourage competition, investment, and innovation to the detriment of wireless consumers. Rather, as described in more detail in Section II, the Commission should take some simple steps to restore focus and predictability inherent in its current framework.

A. The Commission Should Adopt Spectrum Aggregation Policies That Promote Competition, Investment, And Innovation.

Given the sheer breadth of the Commission's *Notice*, it is appropriate to begin with first principles. As the National Broadband Plan recognizes, secondary market transactions play a critical role in the deployment of next generation broadband wireless services,[17] because they ensure that scarce spectrum is put in the hands of the entities that place the highest value on it and will use it most efficiently.[18] As the industry faces an explosion in data traffic and a "spectrum crunch,"[19] it is now more important than ever to maintain market-based spectrum policies that ensure that spectrum can flow readily to its highest valued uses. To ensure that its spectrum policies remain faithful to these goals and do not impose an unnecessary drag on innovation and investment, the Commission must adopt and apply spectrum aggregation policies that are no more restrictive than necessary to address what should be the sole concern of those

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[17] Federal Communications Commission, *Connecting America: The National Broadband Plan*, at 83 (2010) ("*National Broadband Plan*") ("The goal of the FCC's current secondary market policies is to eliminate regulatory barriers that might hinder access to, and permit more efficient use of, valuable spectrum resources.").

[18] *See* Katz-Israel Decl. ¶ 14.

[19] Remarks of FCC Chairman Julius Genachowski, CTIA Wireless 2011, at 9 (Mar. 22, 2011), http://hraunfoss.fcc.gov/edocs_public/attachmatch/-DOC-305309A1.pdf ("[i]f we do nothing in the face of the looming spectrum crunch, many consumers will face higher prices—as the market is forced to respond to supply and demand—and frustrating service—connections that drop, apps that run unreliably or too slowly. The result will be downward pressure on consumer use of wireless service, and a slowing down of innovation and investment in the space."); *National Broadband Plan* at 76-78.

policies – ensuring that no competitor amasses so much of the available spectrum that it can foreclose competition.[20] Broader, more restrictive policies would reduce innovation and investment, retard competition, and prevent the efficiencies the National Broadband Plan recognizes flow from secondary market transactions.

The Commission should not underestimate the harm that can flow from overly restrictive spectrum aggregation policies. Such policies reduce investment and innovation and thwart competition by punishing success in the marketplace, denying providers that are most successful the spectrum resources they need to serve their customers. Without those resources, these providers must fall back on less efficient, more expensive, and potentially inadequate alternatives to obtain the network capacity they need.[21] Spectrum limits thus can raise the incremental costs of expansion, resulting in less competition, lower quality and innovation and a corresponding reduction in industry output and increase in prices.[22] In this regard, "the claim that large spectrum license holdings trigger competitive success is exactly backward"; large spectrum holdings do not guarantee competitive success, but the expanded demand that accompanies competitive success does trigger a need for the spectrum necessary to serve that demand.[23]

That is not to say that Commission oversight is never warranted. As Professor Katz and Dr. Israel explain, there are well-accepted economic principles for identifying situations in which

[20] Katz-Israel Decl. ¶¶ 15, 26.

[21] Memorandum Opinion and Order, *Application of Cellco Partnership d/b/a Verizon Wireless and SpectrumCo LLC and Cox TMI, LLC for Consent to Assign AWS-1 Licenses*, WT Docket 12-4, FCC 12-95, 27 FCC Rcd. 10698, ¶ 74 (rel. Aug. 23, 2012) ("*Verizon-SpectrumCo Order*") (absent increased spectrum, "incumbent service providers likely would have to use more expensive methods either to deploy a 4G network (such as customer migration), increase 4G capacity, and/or serve new customers."); *Notice* ¶ 13 ("acquiring more spectrum has been the least costly way for all providers to address capacity constraints").

[22] Katz-Israel Decl. ¶ 25.

[23] *Id*.

large holdings of a particular input may pose a legitimate competitive concern,[24] and the Commission's spectrum aggregation policies should reflect those principles. Specifically, they should seek to ensure that no single provider is able to "warehouse" so much of the available spectrum in a given local market that it could actually limit retail competitive pressures.[25]

At the same time, however, the Commission must recognize that any provider in today's wireless industry contemplating such a foreclosure strategy would face a number of virtually insurmountable barriers, and therefore it is extremely unlikely that any provider would even attempt, much less succeed in executing, such a strategy.[26] In particular, the costs of a foreclosure strategy would be prohibitive and the likelihood that those costs could be recovered through supracompetitive profits is remote at best.

First, a foreclosure strategy would require aggregation of a very large percentage of the available spectrum, because a viable – indeed, robust – LTE network can be launched with relatively modest amounts of spectrum.[27] Given the extraordinary cost of spectrum today, a provider would have to commit to an almost impossibly costly campaign of spectrum acquisition

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[24] *Id*. ¶ 26.

[25] *Id*. ("For foreclosure to be a valid competitive concern, two conditions must hold. First, the firm holding the inputs allegedly being used to foreclose rivals must have the ability to withhold the inputs from other firms (or raise the price of the inputs) and thereby raise the costs facing those other firms by an amount sufficient to have a *significant* effect on downstream competition. Second, the efficiencies created by the firm's use of this spectrum must not increase consumer welfare by an amount that outweighs any loss of consumer welfare due to harm to competition."); *see also, e.g., Second Biennial Review Order* ¶ 26 (goal of spectrum aggregation limits is "preventing anticompetitive outcomes" that can be accomplished if "licensees [are able to] artificially withhold[] capacity from the market"); Memorandum Opinion and Order, *Applications of AT&T Wireless Services, Inc. and Cingular Wireless Corporation for Consent to Transfer Control of Licenses and Authorizations*, 19 FCC Rcd. 21522, ¶¶ 108-109 (rel. Oct. 26, 2004) ("*AT&T-Cingular Merger Order*").

[26] *See* Katz-Israel Decl. ¶¶ 27-32.

[27] *See id*. ¶¶ 28, 60-61.

if it truly hoped to aggregate enough spectrum to make a market foreclosure strategy viable.[28] Moreover, the amount of spectrum available for wireless services will only increase as the Commission clears and makes available additional spectrum (or third parties that have unused spectrum make it available for sale). Thus, the would-be forecloser would need not only to "corner the market" on spectrum today, but continue to do so as more spectrum becomes available in order to obtain any durable market power.[29]

Second, and relatedly, there are significant regulatory constraints on the ability to hoard spectrum. Most mobile wireless spectrum licenses are subject to build-out requirements expressly designed to ensure that spectrum is expeditiously put to productive use. Such build-out requirements would make "warehousing" sufficient spectrum to diminish competitive pressures even more improbable. Any carrier contemplating the acquisition of spectrum as a foreclosure strategy would have to incur substantial costs (over and above the initial purchase price) to fulfill license build-out requirements.[30]

Third, any foreclosure attempt would have to cope with the reality that multiple facilities-based wireless competitors already hold substantial spectrum and have entrenched themselves as successful competitors in every local market in the country.[31] Indeed, many of those providers have publicly stated that they already hold enough spectrum to meet their capacity requirements

[28] *Id*. ¶¶ 28-30.

[29] *Id*. ¶ 30.

[30] *Id*. ¶ 32 ("to the extent that the Commission imposes network build-out requirements, the *costs* of a spectrum warehousing strategy are increased by the need invest in network infrastructure to satisfy the build-out requirements even if the infrastructure is not going to be used to offer service").

[31] *Id*. ¶ 27.

for years.[32] The largest spectrum holder in the country by a wide margin is Softbank/Sprint/Clearwire, which holds an average of nearly 200 MHz in the top 100 markets.[33] Indeed, as reproduced in Figure 2, Sprint/Clearwire tout their position as having "more spectrum than anyone."[34]

Figure 2. Clearwire Spectrum Holdings vs. Everyone Else

[32] *See* Phil Goldstein, *Verizon's Shammo: We Have Enough Spectrum for 4-5 Years*, FierceWireless (Sept. 20, 2012), http://www.fiercewireless.com/story/verizons-shammo-we-have-enough-spectrum-4-5-years/2012-09-20; Press Release, T-Mobile, T-Mobile USA Announces Reinvigorated Challenger Strategy (Feb. 23, 2012), http://newsroom.t-mobile.com/articles/ReinvigoratedChallengerStrategy; Roger Cheng, *Sprint to Launch 4G LTE in 10 Cities by the End of June*, CNET (Jan. 5, 2012), http://news.cnet.com/8301-1035_3-57353262-94/sprint-to-launch-4g-lte-in-10-cities-by-the-end-of-june/.

[33] Clearwire 2011 Annual Report, at 14 ("Our deep spectrum position in most of our markets enables us to offer our subscribers significant mobile data bandwidth, with potentially higher capacity than is currently available from other carriers."); *see also* Peter White, *Clearwire Investor Thinks Sale of Spectrum Could Bring in $9 Billion*, Rethink Wireless (Nov. 6, 2012), http://www.rethink-wireless.com/2012/11/06/clearwire-investor-sale-spectrum-bring-9-billion.htm; Hope Cochran, CFO, Clearwire Corp., Investor Presentation (Sept. 19, 2012), *available at* http://corporate.clearwire.com/events.cfm. As noted, Sprint and SoftBank concede that SoftBank will acquire "*de jure* control of Clearwire through its Sprint investment." Sprint-SoftBank Public Interest Statement at 30.

[34] Clearwire, Our Network: Clearwire Has More Spectrum Than Anyone, http://www.clearwire.com/company/our-network (last visited Nov. 26, 2012).

Verizon Wireless has broad nationwide spectrum holdings, T-Mobile is proposing to merge its significant spectrum holdings with those of MetroPCS in a transaction that T-Mobile states will address its spectrum concerns, and many other smaller and regional carriers have substantial holdings in individual local markets.[35] From the perspective of any individual carrier, therefore, the *majority* of the remaining spectrum in each local market – which represents several times the minimum scale necessary to provide competitive service – is already held by multiple carriers that are not going to part with it if doing so would render them unable to compete effectively. This means that it would be extremely difficult, if not impossible, to acquire enough spectrum to foreclose competition and recoup the considerable costs of executing that strategy through supracompetitive prices.

A foreclosure strategy would be particularly hopeless today given that Sprint's Clearwire, with its enormous BRS/EBS spectrum position, holds itself out as a provider of *wholesale* LTE capacity. Clearwire recently boasted that it has the "largest 4G spectrum portfolio in the industry" – averaging more than 130 MHz per market and approximately 160 MHz in the top 100 markets – that is ideally suited to offer wholesale service with "more capacity, greater speeds, faster scalability, [and] lower cost per/MB" than other providers.[36] "As a result [of its spectrum holdings], Clearwire has the capability to generate much greater capacity and better network performance by virtue of a significantly fatter pipe *vis-à-vis* competitors."[37] Significantly, Clearwire is targeting urban "hot spots" where demand for wireless data services is

[35] *See* supra, n. 32; *see also Fifteenth Wireless Competition Report* ¶¶ 287, 301.

[36] The Clearwire 4G Disruptor Presentation at 7, 9, & 12-13. Clearwire also boasts that, with its spectrum depth, it is "the only operator with spectrum for true LTE-A (40+ MHz ch[annels])." *Id.* at 17.

[37] John Byrne, IDC White Paper, *Validating the Market for TDD LTE in the U.S. Marketplace,* at 2 (Aug. 2012).

often the greatest, including New York, Los Angeles, Chicago, San Francisco, and Seattle.[38] And Sprint and SoftBank have informed the Commission that Softbank intends to provide Clearwire's parent, Sprint, with $8 billion of additional capital.[39] Thus, even in those instances where rivals might be spectrum constrained and unable to respond to a (hypothesized) attempt by a carrier that has attempted to hoard spectrum with the goal of raising prices, these rivals could utilize spectrum capacity obtained from Clearwire at wholesale to steal away customers disaffected with any attempt to raise prices.[40]

Fourth, as Professor Katz and Dr. Israel explain, a provider pursuing a foreclosure strategy would bear all of the costs of executing the strategy, but the "benefits" (in the form of reduced competition) would be spread among all of the firms that remain in the marketplace. Strategies in which the costs are concentrated in one firm but the benefits are diffuse across the marketplace are unlikely to be profitable, and therefore it is especially implausible to believe that a foreclosure strategy could be successful in today's competitive environment.[41]

Finally, even assuming *arguendo* the unrealistic possibility that a carrier could eliminate competition through a foreclosure strategy, its actions would almost certainly prompt regulatory or legislative action that would prevent it from recouping the considerable costs of its foreclosure strategy through supracompetitive profits.

For all of these reasons, although spectrum foreclosure remains a theoretical concern, the Commission's regulatory policies should recognize that the real world threat of foreclosure

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[38] The Clearwire 4G Disruptor Presentation at 14 ("target high-density, high-usage urban hot zones to maximize impact of spectrum depth").

[39] Sprint-SoftBank Public Interest Statement at 1.

[40] Katz-Israel Decl. ¶ 27.

[41] *Id*. ¶ 31.

through spectrum aggregation is extremely remote.[42] Indeed, given how difficult it would be to pursue a successful foreclosure strategy, it is not clear that the Commission needs a special set of rules to regulate spectrum aggregation at all. But if the Commission adopts any rule in this area, it must be founded on the principle that the Commission will interfere with market-based spectrum allocation mechanisms only in the relatively unusual circumstance in which the acquisition of spectrum in a market raises genuine concerns about foreclosure. The Commission must not allow spectrum aggregation policy to stray beyond its proper boundaries and become a tool for hobbling successful competitors by artificially limiting their access to a key input. It is *not* a proper goal of spectrum aggregation policy to try to create equal-sized competitors, minimize market concentration, or maximize the number of competitors.[43]

Finally, an economically sound spectrum aggregation policy must also promote predictability for the industry while maintaining the flexibility to reach the right result in each individual case. Unnecessary regulatory uncertainty has real costs. Spectrum is expensive, and due to the significant lead times for acquiring, clearing and deploying new spectrum, providers necessarily take a very long-term view when considering where new spectrum will likely be needed, and how to obtain the needed spectrum.[44] Under a predictable spectrum aggregation regime, providers could make these long-term decisions with relative certainty that the

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[42] *Id*. ¶¶ 26-32.

[43] *Id*. ¶¶ 17, 23; *see also, e.g.,* Report and Order, *Competition in the Interstate Interexchange Marketplace*, 6 FCC Rcd. 5880, ¶ 60 (rel. Sept. 16, 1991) ("*Interexchange Competition Order*") ("the issue is not whether AT&T has advantages, but, if so, why, and whether any such advantages are so great as to preclude the effective functioning of a competitive market"; "the competitive process itself is largely about trying to develop one's own advantages, and all firms need not be equal in all respects for this process to work").

[44] Katz-Israel Decl. ¶ 44 ("Because more precise rules of the road tend to reduce uncertainty and risk, they also tend to reduce the cost of capital associated with an investment project, making more projects profitable").

acquisitions they propose will not be blocked or significantly devalued by regulators. In contrast, where regulatory uncertainty is injected into this equation, providers will have strong incentives to play it safe, resulting in re-ordered priorities and second-best or third-best spectrum acquisition strategies driven by the need to obtain regulatory approval rather than by competition and efficiency.[45]

B. The Safe Harbor/Case-By-Case Spectrum Screen Approach, Properly Applied, Provides Ample Predictability And Is Far Superior To An Inflexible Spectrum Cap.

As between inflexible spectrum caps and a clear safe harbor with case-by-case review of requests to exceed the safe harbor level, the choice is clear.[46] The current safe harbor/case-by-case approach – when properly applied on a competitively neutral basis – best promotes the public interest.[47]

The safe harbor/case-by-case approach is the only regulatory framework consistent with the economic principles described above.[48] First, that framework – at least as originally conceived – provides the right degree of predictability, because it relies on an initial screen that functions as a true safe harbor.[49] As Professor Katz and Dr. Israel explain, there is a powerful economic case for identifying a level of spectrum holdings *below* which foreclosure is unlikely

[45] *Id*. ¶ 45.

[46] *Notice* ¶ 18 (seeking comment on whether a "bright line" cap would provide greater regulatory "certainty" than the current case-by-case approach).

[47] *Second Biennial Review Order* ¶ 50.

[48] Katz-Israel Decl. ¶¶ 48-56.

[49] *AT&T-Cingular Merger Order* ¶ 108 (screen is intended to "eliminate from further review those markets in which there is clearly no competitive harm relative to today's generally competitive marketplace"); Memorandum Opinion and Order and Declaratory Ruling, *Applications of Cellco Partnership d/b/a Verizon Wireless and Atlantis Holdings LLC for Consent to Transfer Control of Licenses, Authorizations, and Spectrum Manager and De Facto Transfer Leasing Arrangements*, 23 FCC Rcd. 17444, ¶ 62 (rel. Nov. 10, 2008) ("*Verizon-ALLTEL Merger Order*").

to occur, because establishing a true safe harbor reduces uncertainty and thus creates incentives to invest in spectrum acquisitions that increase efficiency without causing competitive harm.[50] The Commission has correctly acknowledged that the current screen, which is set at roughly one-third of the available spectrum, is already "conservative,"[51] and thus treating the screen as a true safe harbor would restore much needed predictability without creating any risk to competition.

Second, a case-by-case review of requests to exceed the safe harbor screen, applied in a transparent, consistent and competitively neutral manner, gives the Commission the flexibility to reach the correct result for spectrum transfers that exceed the screen while giving industry the certainty required to encourage investment.[52] In this respect, the existing framework takes a more sophisticated approach to evaluating the competitive effects of a spectrum transfer than a simple mechanical calculation of whether a competitor would have more than a specified percentage of a single input.[53] Because the screen is conservative, there are many spectrum transfers that would serve the public interest even though the resulting level of spectrum would exceed the screen. This is underscored by the Commission's findings on numerous occasions that "above-screen" spectrum holdings raised no competitive concerns because of the presence of multiple competitors with substantial spectrum holdings.[54]

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[50] Katz-Israel Decl. ¶ 56.

[51] *AT&T-Cingular Merger Order* ¶ 108.

[52] *Second Biennial Review Order* ¶¶ 30-46.

[53] Katz-Israel Decl. ¶ 54.

[54] *See, e.g., Verizon-ALLTEL Merger Order* ¶¶ 3, 98-113 (initial screen after voluntary divestitures identified 118 CMAs exceeding the screen, but the Commission did not review 108 of them in depth and concluded that there was no likelihood of competitive harm; of the 10 CMAs examined, divestitures were required in five); Memorandum Opinion and Order, *Sprint Nextel Corporation and Clearwire Corporation Applications for Consent to Transfer Control of Licenses, Leases, and Authorizations*, 23 FCC Rcd. 17570, ¶¶ 81-83 (rel. Nov. 7, 2008) ("*Sprint-Clearwire Order*") (no significant likelihood of harm was found in 43 markets caught by the spectrum screen, including Honolulu, where the Commission found there were four other

In applying the case-by-case approach, the Commission should focus on the only relevant issue in those cases, which is whether the transfer at issue would give the acquiring party so much spectrum that it could actually threaten to foreclose retail competition. And when the Commission is clear about the types of factors it will consider in making that determination (and reaffirms that it will not consider extraneous issues that are not transaction-specific), the case-by-case approach can achieve an appropriate level of predictability even for the analysis of transfers that would exceed the screen.

The uncertainty that now constrains the marketplace is not a result of the case-by-case approach itself, but from uncertainty about how the Commission will apply it. Accordingly, and as explained more fully in Section II below, the Commission should take certain relatively simple steps to eliminate the uncertainties and arbitrariness that have crept into the implementation of its case-by-case regulatory framework. But by no means should the Commission abandon the clear benefits of the safe harbor/case-by-case under the guise of providing more "regulatory certainty."

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providers with at least 30 MHz each and 24 MHz was available on the secondary market); Memorandum Opinion and Order, *Application of Aloha Spectrum Holdings Company LLC and AT&T Mobility II LLC Seeking FCC Consent for Assignment of Licenses and Authorizations*, 23 FCC Rcd. 2234, ¶¶ 11-12 (rel. Feb. 4, 2008) ("*Aloha Spectrum-AT&T Mobility II Order*") (no competitive harm found in 11 CMAs, because in each CMA there were two to four other providers with sufficient market share and spectrum, several other firms held spectrum they could use to enter the market, secondary market sales were possible, and new entrants could bid for spectrum in the market through the 700 MHz auction); Memorandum Opinion and Order, *Application of Midwest Wireless Holdings, LLC and ALLTEL Communications, Inc. for Consent to Transfer Control of Licenses and Authorizations*, 21 FCC Rcd. 11526, ¶¶ 84-91 (rel. Oct. 2, 2006) ("*ALLTEL-Midwest Wireless Order*") (merged entity would hold between 50 and 75 MHz in RSA, but Commission found little change in the character of competition because there was a large number of carriers also serving portions of the CMA and two carriers covering the RSA).

C. There Is No Justification For Returning To Inflexible Spectrum Caps.

An inflexible spectrum cap, by contrast, would be patently arbitrary and anticompetitive. Indeed, there is no factual, economic, or practical basis for a return to a "bright-line" framework.

The spectrum cap was originally adopted in 1994, when cellular service was still in its infancy, far less overall spectrum was available, and only two facilities-based competitors existed in each city.[55] The Commission adopted the cap as a "complement" to the PCS auction rules – *i.e.*, the Commission wanted to ensure that the PCS auction expanded competition beyond the existing two incumbents.[56] The Commission recognized that the cap was inefficient because it would preclude beneficial transactions, but it believed that the efficiency losses were outweighed at that time by the need to jump-start competition in a nascent industry.[57]

In 2001, the Commission repealed the cap (effective January 1, 2003) in recognition of the fact that the competitive landscape had changed dramatically. The Commission concluded that the wireless marketplace was far more competitive than it had been when the cap was adopted.[58] The Commission found that case-by-case review had become preferable "because it gives the Commission flexibility to reach the appropriate decision in each case, on the basis of the particular circumstances of that case."[59] As it explained, "competition is now robust enough in CMRS markets that it is no longer appropriate to impose overbroad, *a priori* limits on

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[55] Third Report and Order, *Implementation of Sections 3(n) and 332 of the Communications Act – Regulatory Treatment of Mobile Services*, 9 FCC Rcd. 7988, ¶¶ 238-85 (rel. Sept. 23, 1994) ("*CMRS Third Report and Order*").

[56] *Id.* ¶¶ 238-40.

[57] *Second Biennial Review Order* ¶ 50 (discussing prior imposition of spectrum caps).

[58] *Id*. ¶¶ 30-46.

[59] *Id*. ¶ 50.

spectrum aggregation that may prevent transactions that are in the public interest."[60] It also recognized that spectrum caps can prevent providers from achieving scale efficiencies and force carriers to increase capacity through inefficient means.[61]

Some parties predicted in 2001 that repealing the cap would lead to a variety of dire negative consequences: *e.g.*, that smaller carriers would be unable to obtain spectrum in secondary market transactions; that smaller carriers would not participate in auctions; that prices would increase; and that innovation would decrease.[62] But as Professor Katz and Dr. Israel show, in each case the exact opposite occurred. "The lesson is simple: the Commission should be wary of accepting speculative arguments for a cap that have been discredited by the actual experience of the last decade."[63]

The case for a spectrum cap is far *weaker* today than when the Commission repealed the cap in 2001. *First*, the wireless marketplace is more robustly competitive now than it was 10 years ago.[64] The overwhelming majority of consumers have the choice of five to six facilities-based competitors and numerous mobile virtual network operators.[65] And consumers are paying less for more.[66] At the same time, investment has flourished, vastly improving the quality (and

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[60] *Id.*

[61] *Id.* ¶¶ 71-72.

[62] *See* Katz-Israel Decl. ¶ 52 (*quoting* Cramton Declaration ¶¶ 9, 41, 32; Cramton Reply Declaration ¶¶ 8, 37, filed in WT Docket No. 01-14).

[63] *Id.* ¶ 53.

[64] *Id.* ¶ 52.

[65] Reply Comments of Verizon Wireless, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993*, WT Docket No. 11-186, at 5 (Dec. 20, 2011) ("Verizon Wireless Dec. 20, 2011 Reply Comments"); *see also Fifteenth Wireless Competition Report* ¶ 45.

[66] *See, e.g.*, Cyrus Farivar, "Talk is cheap: Cell phones hit six billion worldwide," Ars Technica, Oct. 11, 2012, at 1, http://arstechnica.com/business/2012/10/talk-is-cheap-six-billion-people-worldwide-have-cellphones/ ("Farivar Ars Technica Article"); CTIA Press Release, at 1; Reply

availability) of the services being provided to wireless consumers. The United States is "now leading the world in deploying the next generation of wireless broadband networks – 4G LTE – at scale."[67] Deployment of broadband wireless infrastructure is not just limited to the four nationwide carriers, but includes many regional providers as well.[68] Aggregate annual incremental capital investment across all carriers is over $20 billion a year.[69] As a result of this wireless broadband innovation, data traffic carried on wireless networks has exploded, and between June 2011 and June 2012, Americans used 1.1 *billion gigabytes* of mobile data.[70]

Second, there is far more spectrum in the hands of multiple carriers today, making any foreclosure strategy much more difficult to implement.[71] Indeed, as the Commission explained and depicted in the National Broadband Plan (and as reproduced in Figure 3 below), the amount of spectrum that is available "above the screen" in absolute terms has grown substantially.[72]

Comments of Verizon Wireless, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993*, WT Docket No. 11-186, at 9-11 (Dec. 5, 2011); Comments of Internet Innovation Alliance, WT Docket No. 12-269 at 3 (Nov. 20, 2012) ("IIA Comments").

[67] Sept. 25, 2012 Chairman Genachowski Remarks at 2.

[68] *Fifteenth Wireless Competition Report*, at 9670-71.

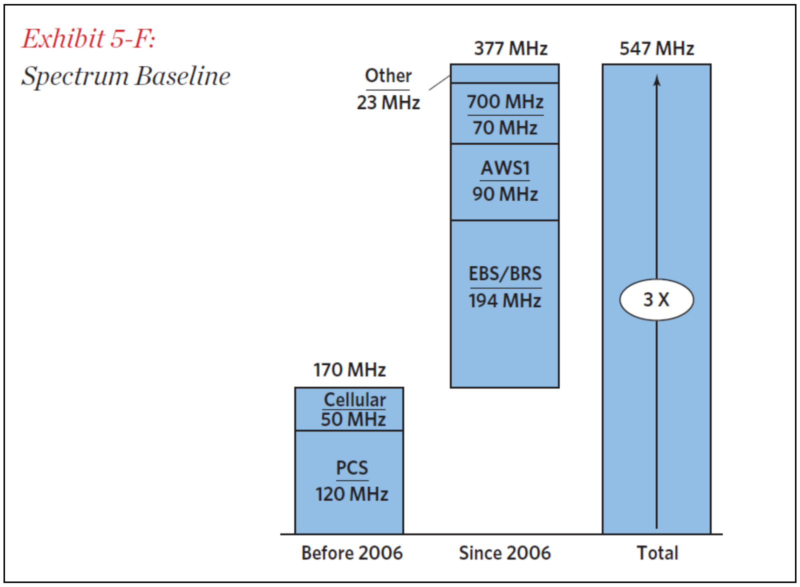
[69] *Id*. at 9680; *see also* IIA Comments at 2.

[70] CTIA Press Release at 1.

[71] Katz-Israel Decl. ¶ 29 ("as the total amount of spectrum available rises, the cost of deterring entry by warehousing spectrum rises").

[72] *National Broadband Plan* at 85 (Exhibit 5-F).

Figure 3. National Broadband Plan: Increase In Available Spectrum Since 2006



As the Commission has recognized, the spectrum screen should be based on how much total spectrum remains available for others, not how much spectrum a particular competitor should have. Thus, for example, the Commission in the *Western Wireless-ALLTEL Order* found that a 70 MHz screen was appropriate at a time when only 200 MHz of suitable spectrum was available, because "leaving 130 MHz of capacity available for competitive response by other carriers in a local market" was "sufficient to support at least three viable competitors" capable of preventing any possible exercise of market power.[73] Thus, even under the Commission's current view of the amount of "useable" spectrum, a cap or screen set at approximately one-third of useable spectrum would leave about 300 MHz of spectrum available to other carriers – more than sufficient to support numerous other providers of mobile wireless services. And, since multiple competitors in every local market have *already* established themselves as active

[73] Memorandum Opinion and Order, *Applications of Western Wireless Corporation and ALLTEL Corporation for Consent to Transfer Control of Licenses and Authorizations,* 20 FCC Rcd. 13053, ¶ 49 (rel. July 19, 2005), ("*Western Wireless-ALLTEL Order*").

competitors that would be unwilling to sacrifice the spectrum that they need to be effective competitors, there is even less justification today for a return to a rigid spectrum cap.

Third, the wireless marketplace is far more dynamic now than it was thirteen years ago, and it thus requires even more flexibility in the administration of spectrum policy. Providers that are first to invest in new technologies may require more capacity more quickly than others. Investment in new technologies and services that create consumer value should be encouraged, but inflexible spectrum policies that could deny wireless providers the capacity they need to provide those offerings can only discourage such innovation and investment.

Indeed, inflexible spectrum policies would threaten competition itself. Carriers that make investments to facilitate offering better services at better prices and thereby win more customers require more capacity than those who do not.[74] But a binding spectrum cap could potentially prevent them from obtaining the additional capacity they need to serve those customers,[75] and, at a minimum, it would raise the cost of expanding service to meet increasing demand by forcing the use of less efficient means of increasing capacity.[76] Artificial limits on the spectrum available to a carrier thus could increase a carrier's marginal costs, inducing the firm to charge higher prices and sell less of its services.[77] As Professor Katz and Dr. Israel also explain, this hobbling of competition would induce all carriers to compete less vigorously. A binding spectrum cap effectively creates a "pricing umbrella" for smaller service providers, because they

[74] "[T]hose service providers that are most successful in offering services and products that consumers desire are the providers that have greatest demands for spectrum use rights." Katz-Israel Decl. ¶ 21.

[75] *Id*. ¶¶ 20-25.

[76] *Id*. ¶ 25 ("over time, the fact that growing firms will ultimately face a 'success tax' (via binding limits on spectrum holdings and the resulting need to turn to more expensive ways to expand capacity) is likely to reduce incentives to invest the resources required to succeed in the first place").

[77] *Id*. ¶¶ 25, 49.

know that carriers constrained by spectrum caps effectively face higher marginal costs and have reduced incentives to grow by offering attractive prices.[78]

A spectrum cap can further harm consumers by forcing an inefficient allocation of spectrum resources.[79] Carriers with a pressing need for additional spectrum in certain markets could be unable to obtain the spectrum they need in those markets, even if they could put such spectrum to a better and more efficient use than others without posing any threat to robust facilities-based competition. To give one example, a provider with a large network investment may have a pressing need for additional spectrum in New York City that it would put to immediate use to improve or upgrade service for millions of customers, but a cap might prevent that provider from acquiring any additional spectrum, which could open the way for speculators that have no immediate plans to use it to snap it up at artificially low prices and warehouse this extremely valuable resource.[80] Although such a cap may help particular licensees, the Commission's "statutory responsibility . . . is to protect competition, not competitors"[81] and it may not utilize its authority to "subordinate the public interest to the interest of equalizing competition among competitors."[82]

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[78] *Id*. ¶ 49.

[79] *Id*.

[80] In contrast, where, for example, AT&T has deployed LTE over 700 MHz spectrum, it has the ability to put additional spectrum to use to increase capacity in a matter of months providing immediate value to customers.

[81] Order and Authorization, *Application of Alascom, Inc. AT&T Corporation and Pacific Telecom, Inc. For Transfer of Control of ALASCOM, Inc. from Pacific Telecom, Inc. to AT&T Corporation; and Application of Alascom, Inc. For Review of Authorization to Acquire and Operate a Fiber Optic Cable System between Alaska and Oregon for the Provision of Interstate-Switched and Private Line-Services*, 11 FCC Rcd. 732, ¶ 56 (rel. Aug. 2, 1995); *see also Brunswick Corp. v. Pueblo Bowl-O-Mat, Inc.*, 429 U.S. 477, 488 (1977) (internal quotation marks omitted) (purpose of antitrust laws is "for the protection of competition not competitors").

[82] *See*, *e.g.*, *SBC Commc'ns, Inc. v. FCC*, 56 F.3d 1484, 1491 (D.C. Cir. 1995) (internal quotations omitted); *W.U. Telephone Co. v. FCC*, 665 F.2d 1112, 1122 (D.C. Cir. 1981)

Perhaps most importantly, this harm to competition would include severe harm to innovation and investment. As Professor Katz and Dr. Israel explain, innovation and investment have been the main engines of consumer welfare gains in wireless telephony markets.[83] "Limits on the ability of successful firms to obtain spectrum rights would have adverse effects on innovation because it would be more difficult and costly (and in some cases, impossible) for a service provider to expand when it has developed a successful business model that would require additional spectrum to meet consumer demand for its services."[84] As the Commission itself acknowledges, the acquisition of additional spectrum is often the most efficient way to expand capacity.[85] Introducing new services while being unable to expand network capacity would lead to network congestion and service degradation, weakening incentives to innovate and invest.[86]

("equalization of competition is not itself a sufficient basis for Commission action"); *Interexchange Competition Order* ¶ 60 (large firms may have many advantages, including "resource advantages, scale economies, established relationships with suppliers, ready access to capital, etc.," but the mere fact that a firm has these advantages does not mean that it is "appropriate for government regulators to deny the incumbent the efficiencies its size confers in order to make it easier for others to compete"); *United States v. Western Elec.*, 969 F.2d 1231, 1243 (D.C. Cir. 1992) (Commission has no public interest authority to "aid the minnows against the trout").

[83] Katz-Israel Decl. ¶¶ 33-40.

[84] *Id*. ¶ 41.

[85] *See Notice* ¶ 13. Measures such as microcells, DAS, and other "heterogeneous" network solutions typically have only a limited ability to expand capacity and are costly. *See also Verizon Wireless-SpectrumCo Order* ¶ 74; FCC Staff, Technical Paper, *Mobile Broadband: The Benefits of Additional Spectrum*, at 20-21, 25 (Oct. 2010), *available at* http://download.broadband.gov/plan/fcc-staff-technical-paper-mobile-broadband-benefits-of-additional-spectrum.pdf; *National Broadband Plan* at 75-77; Joint Declaration of Jeffrey Reed and Nishith Tripathi, *Applications of AT&T Mobility Spectrum LLC and Qualcomm Incorporated for Consent to the Assignment of Licenses and Authorizations*, WT Docket No. 11-18, at 32-36 (March 21, 2011) ("Reed-Tripathi AT&T-Qualcomm Declaration").

[86] Katz-Israel Decl. ¶¶ 41-43.

Indeed, the principal reason that firms undertake innovation and investment is to increase demand for their services.[87]

These harms would only be exacerbated by the fact that Commission could not possibly set the "right" cap in the first place, much less address market variations with a single national cap. There is no single, definable limit on spectrum aggregation above which a provider can foreclose competition, and the Commission does not have the omniscience to identify any such line. Providers' spectrum acquisition decisions are driven by the particular realities of each marketplace and the providers' engineering judgments about how best to provide the highest quality services to their customers. The Commission does not have the information or the tools to pre-judge those engineering judgments or to create a single, prophylactic rule that attempts to dictate in advance precisely how much spectrum any given provider will "need" to serve its customers.[88] Indeed, the very notion that the Commission can determine which carrier can make the "best" use of spectrum is inconsistent with Section 310(d), which prohibits the Commission

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[87] *Id.* ¶ 13, 18, 21, 24, 41.

[88] This point is underscored by the fact that the Commission justified the spectrum cap as a "simplified" HHI. *Amendment of Parts 20 and 24 of the Commission's Rules – Broadband PCS Competitive Bidding and the Commercial Mobile Radio Service Spectrum Cap*, 11 FCC Rcd. 7824, ¶ 96 (rel. June 24, 1996) ("*PCS Remand Order*"). In fact, the Department of Justice and the Federal Trade Commission use the Herfindahl-Hirschman Index ("HHI") as a *screen* – not as a hard *cap* that limits the growth of any one firm beyond a certain level. Department of Justice/Federal Trade Commission, Horizontal Merger Guidelines § 5.3 (Aug. 19, 2010) ("Horizontal Merger Guidelines") ("The purpose of these thresholds is not to provide a rigid screen to separate competitively benign mergers from anticompetitive ones, although high levels of concentration do raise concerns. Rather, they provide one way to identify some mergers unlikely to raise competitive concerns and some others for which it is particularly important to examine whether other competitive factors confirm, reinforce, or counteract the potentially harmful effects of increased concentration."). Indeed, the antitrust laws never condemn internal growth "as a consequence of a superior product [or] business acumen," *United States v. Grinnell Corp.*, 384 U.S. 563, 570-71 (1966), and antitrust authorities apply the HHI screening tool only to acquisition of existing competitors, Horizontal Merger Guidelines § 5.

from considering whether a given spectrum transfer would be "better" in the hands of a different buyer.[89]

Moreover, even if the Commission had the ability to identify a line above which spectrum aggregation is always anticompetitive, that line would not be the same in all locations at all times and in all contexts. The "line" in any given market would depend on a number of factors peculiar to that market. The ability of any given competitor to foreclose competition in a given market would depend on the characteristics of the other actual and potential competitors in that market,[90] which could change over time. Thus, although the Commission can have the confidence informed by a decade of experience that a safe harbor level of one-third (or even higher) will let pass only efficient spectrum transfers that pose no threat to competition, the question whether spectrum aggregations that exceed a safe harbor level would threaten foreclosure can only be determined through a case-by-case inquiry, and does not lend itself to one-size-fits-all "bright lines."

Finally, the notion that a "bright line" spectrum cap would be administratively superior is also unfounded, as actual experience with the Commission's prior cap showed that it is no less burdensome to administer. Given the high stakes of an outright ban that prohibited beneficial transactions that posed no competitive threat, even the spectrum cap effectively became a case-by-case system, as providers that were not deterred altogether sought a waiver of the cap under the general waiver standard. The waiver standard is ill-fitted to this context, however, which only increases the complexity of such proceedings and undermines the predictability of the framework. Under the prior cap, the Commission was also constantly required to resolve disputes about when the cap applied, because parties frequently argued that certain spectrum did

[89] 47 U.S.C. § 310(d).

[90] Katz-Israel Decl. ¶¶ 26-30, 55.

not count toward the cap under the Commission's complex attribution rules or the prior cap's requirement of a 10 percent geographic overlap (and, indeed, the Commission is now proposing an attribution rule that is arguably more stringent and complex than the one that applied in the 1990s).[91]

In that regard, there is no merit to the suggestion in the *Notice* that the case-by-case approach may deter or complicate participation in auctions.[92] Here again, there is no basis for the Commission to adopt *ex ante* restrictions that prevent providers that can make the highest-valued use of particular spectrum from attempting to acquire that spectrum in an auction (subject to possible divestiture of other spectrum post-auction).[93] To the contrary, *a priori* caps that preclude the highest valued users from participating in auctions will not only result in an inefficient allocation of spectrum but would also cost the Treasury significant lost revenue. Indeed, a new spectrum cap that restricted participation in the upcoming inventive auctions would carry particular dangers, because if the reverse and forward auctions do not clear a certain amount of money, the entire auction fails – and with it, the objective of allocating additional spectrum to mobile wireless services as well as the funding for important public safety initiatives.

Recognizing the undesirable rigidity in returning to a spectrum cap approach, the Commission asks whether it could adopt a "hybrid" approach, such as a bright-line threshold that, if exceeded, would trigger a "heightened burden" on the applicants to show that the proposed transaction was in the public interest.[94] The only justifiable distribution of "burdens" is

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[91] *Notice* ¶ 41.

[92] *Id.* ¶ 19.

[93] Katz-Israel Decl. ¶¶ 67-69, 110.

[94] *Notice* ¶ 22.

the one embodied in the Commission's basic framework: if the spectrum acquisition falls below the level of the screen, it is conclusively presumed that the aggregation of spectrum raises no competitive issue, and if the acquisition triggers the screen, the Commission must determine whether the spectrum transfer threatens to foreclose competition. There is no economic or practical basis for any other division of "burdens." The aggregation of spectrum presents a single public interest issue, which is whether the applicant would amass so much spectrum that it threatens to foreclose the ability of other providers to compete effectively. Any other inquiry that is somehow different or "heightened" relative to that issue would stray beyond the Commission's statutory duty to promote the public interest.[95]

II. THE COMMISSION SHOULD MAKE TARGETED MODIFICATIONS TO ITS IMPLEMENTATION OF THE SAFE HARBOR/CASE-BY-CASE APPROACH TO RESTORE PREDICTABILITY AND IMPROVE ACCURACY.

Although the Commission's safe harbor/case-by-case framework is the correct approach, certain deficiencies have crept into the implementation of that scheme that have unduly and unnecessarily undermined its predictability. Fortunately, there are a series of relative simple steps the Commission can and should take in this proceeding to restore the proper balance between predictability and regulatory flexibility.

At the outset, it is important to restate as a frame of reference precisely how the safe harbor spectrum screen is intended to work. When an applicant proposes to acquire additional spectrum, the Commission examines the proposed aggregation of spectrum in each individual local geographic market. The Commission applies a screen that determines how much spectrum the applicant would hold post-transaction in that local market as a percentage of the total amount of spectrum that is suitable and available to provide mobile wireless services. Historically, if the

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[95] 47 U.S.C. § 310(d).

transaction would leave the applicant with less than about one-third of the available and suitable spectrum in a given local market, the Commission would presume that no further inquiry was necessary in that market as to the competitive effects of the aggregation of spectrum.[96] For any local market in which the transaction triggered the spectrum screen, the Commission would examine market-specific evidence relating to the level of competition and other providers' spectrum holdings to determine whether the proposed aggregation of spectrum, in and of itself, would give the applicant the ability post-transaction to foreclose competition.[97]

To restore the full effectiveness of this approach, the Commission should shore up the implementation of this regulatory framework in six areas. The Commission should (1) add all suitable and available spectrum to the screen and commit to making any appropriate adjustments to the screen on an annual basis; (2) eliminate geographic variation in the spectrum screen based upon outdated availability issues; (3) consider increasing the screen to a level above one-third of the available and suitable spectrum; (4) reaffirm that the screen will function as a true safe harbor; (5) reaffirm that, in instances in which the safe harbor is exceeded, the Commission will focus its inquiry solely on whether the acquisition of spectrum would foreclose competition; and (6) re-affirm that any divestitures required by the Commission's spectrum aggregation policy will be conducted at the spectrum holder's discretion (and reviewed only under the general spectrum aggregation policy).

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[96] *See, e.g., AT&T-Cingular Merger Order* ¶ 109 (function of screen is to identify "any market in which one entity controls more than one-third of this critical input," *i.e.*, spectrum).

[97] *See id.* ¶¶ 109, 112. Of course, the spectrum screen is relevant only to an analysis of the competitive effects of the acquisition of spectrum *per se*. If a given transaction involves the acquisition of a competitor's going concern business and its customers in addition to the acquisition of spectrum, such a transaction would be subject to additional inquiries under the antitrust laws and the Commission's concentration screens and public interest analysis. *See, e.g., Verizon-ALLTEL Merger Order* ¶ 78. *See also* Katz-Israel Decl. ¶ 65.

A. The Commission Should Include All Suitable, Available Spectrum In The Screen And Establish A Regular Rulemaking Process To Update The Spectrum Inventory Used In Applying The Screen.

The Commission should include in the spectrum screen *all* of the spectrum that is "suitable" and "available" to provide mobile wireless services. Spectrum is "suitable" if it is technically capable of supporting mobile service, is licensed for mobile use, and is not so encumbered by other users such that it cannot be feasibly deployed for commercial mobile use.[98] Spectrum is "available" if it will meet the suitability conditions in the near term, which the Commission has traditionally defined as within two years.[99]

To correct the most glaring omission in today's screen, the Commission should include *all* 194 MHz of BRS/EBS spectrum in the screen.[100] Under its current approach, the Commission includes no EBS spectrum at all, and no more than 55.5 MHz of BRS spectrum. It would be patently arbitrary to continue that approach today, because Sprint/Clearwire holds the vast majority of this spectrum, and they are *actually using* spectrum in those bands to provide broadband mobile services across the country – and have been for years. Indeed, Clearwire has

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[98] To determine "suitability" the Commission considers "the physical properties of the spectrum, the state of equipment technology, whether spectrum is licensed with a mobile allocation and corresponding service rules, and whether the spectrum is committed to another use that effectively precludes its use for mobile telephony." *Verizon-ALLTEL Merger Order* ¶ 62; *see also, e.g., AT&T-Cingular Merger Order* ¶ 81; Memorandum Opinion and Order and Declaratory Ruling, *Applications of Cellco Partnership d/b/a Verizon Wireless and Rural Cellular Corporation for Consent to Transfer Control of Licenses, Authorizations, and Spectrum Manager Leases*, 23 FCC Rcd. 12463 ¶ 43 (rel. Aug. 1, 2008) ("*Verizon-RCC Order*"); Memorandum Opinion and Order, *Applications of AT&T, Inc. and Dobson Communications Corporation for Consent to Transfer Control of Licenses and Authorizations*, 22 FCC Rcd. 20295, ¶ 26 (rel. Nov. 19, 2007) ("*AT&T/Dobson Order*"); *ALLTEL-Midwest Wireless Order* ¶ 31; Memorandum Opinion and Order, *Applications of Nextel Commc'ns, Inc. and Sprint Corporation for Consent to Transfer Control of Licenses and Authorizations*, 20 FCC Rcd. 13967, ¶ 61 (rel. Aug. 8, 2005) (*"Sprint-Nextel Order"*).

[99] *See, e.g., Verizon-ALLTEL Merger Order* ¶ 62, n.256.

[100] *See Sprint-Clearwire Order* ¶¶ 62-71.

emphasized to its investors that because of its "deep spectrum holdings" of BRS/EBS spectrum that it "is better positioned to meet … increasing demand than any other carrier."[101] Clearwire has deployed "4G" WiMAX service using this spectrum in 80 U.S. markets. And, according to Clearwire, "[t]his is the year we begin overlaying LTE Advanced-ready technology on our 4G WiMAX network."[102] Just a few weeks ago, Clearwire's CEO confirmed that Clearwire is "in the midst" of that upgrade "as we speak,"[103] and he emphasized that its BRS/EBS spectrum holdings give it the "[l]argest spectrum portfolio in the industry" and that its LTE deployment will "disrupt" the mobile industry.[104] Clearwire has bragged about the "suitability" of this spectrum for LTE service by noting that "since we currently support millions of customers in the 2.5 GHz band, we know that our LTE network won't present harmful interference issues with GPS or other sensitive spectrum bands."[105] As Clearwire depicted its spectrum holdings in a recent investor presentation:[106]

[101] Erik Prusch, President and CEO, Clearwire Corp. Letter to Shareholders, 2011 Clearwire 2011 Annual Report, at 2.

[102] Clearwire, Announcing The Future Of LTE, at 1, http://www.clearwire.com/company/featured-story ("Clearwire Story: Announcing The Future of LTE").

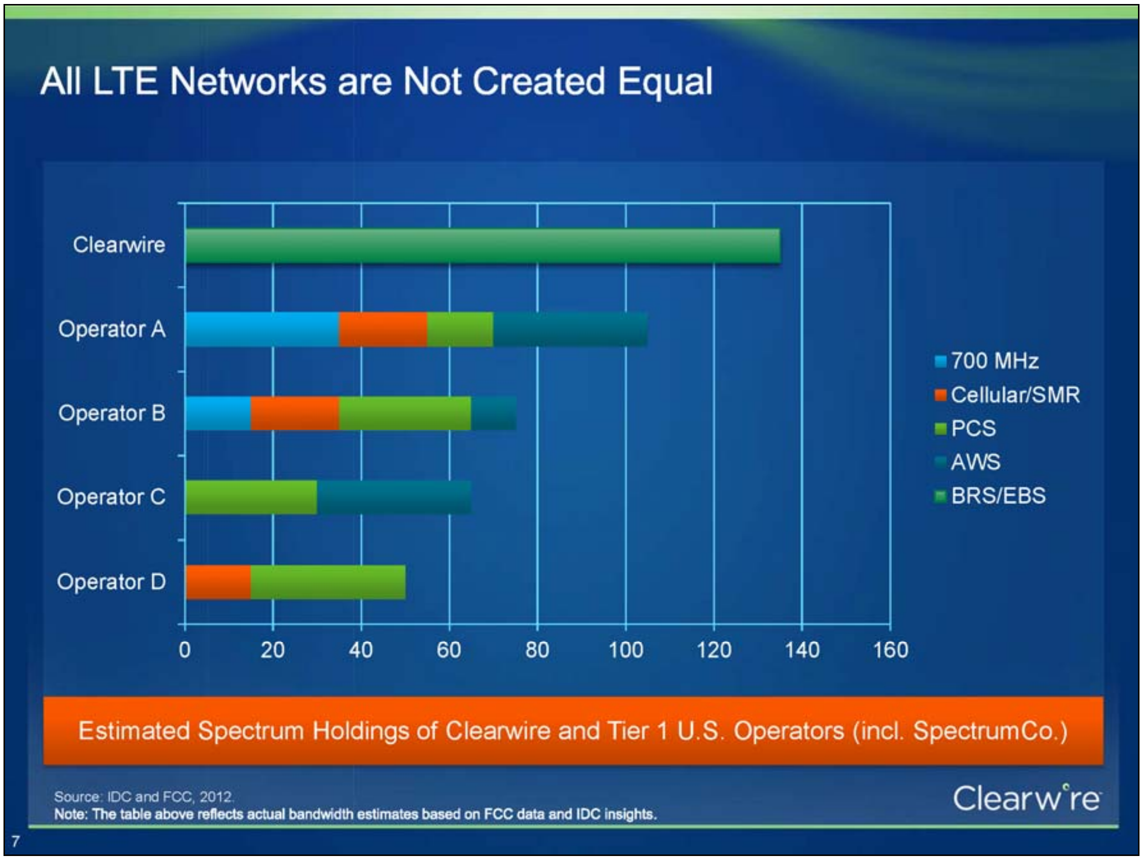
[103] The Clearwire 4G Disruptor Presentation at 9.

[104] *Id.*

[105] Clearwire Story: Announcing The Future of LTE at 1.

[106] The Clearwire 4G Disruptor Presentation at 7. This understates Sprint/Clearwire's spectrum advantage because it does not include Sprint's substantial spectrum holdings, which must be included under any reasonable attribution standard. As noted, Sprint/Clearwire in combination hold an average of almost 200 MHz of spectrum in the top 100 markets, almost double that of the next largest spectrum holder.

Figure 4. Clearwire's Spectrum Holdings Relative To Other Providers'



This should not be surprising, because it has long been clear that the entirety of Clearwire's BRS/EBS spectrum is suitable for mobile broadband wireless services.[107] When the Commission last updated the spectrum screen in 2008, the principal reason that it did not include all BRS spectrum in the screen at that time was because "the availability of BRS spectrum for new mobile uses depends on the ongoing transition process" – *i.e.*, the transition to a new band plan under the Commission's rules, which at that time was still in progress.[108] The BRS/EBS

[107] *Verizon-RCC Order* ¶ 44 ("BRS spectrum is capable of supporting mobile telephony services given its physical properties and the state of equipment technology, and the spectrum is licensed with allocation and service rules that allow mobile uses").

[108] *AT&T-Dobson Order* ¶ 34. The transition requirements adopted by the Commission became effective in July 2006. *See* Report and Order and Further Notice of Proposed Rulemaking, *Amendment of Parts 1, 21, 73, 74 and 101 of the Commission's Rules to Facilitate the Provision*

transition is now essentially complete.[109] In its most recent wireless Competition Report, the Commission counted 187 MHz of BRS/EBS spectrum as available for mobile use,[110] and the National Broadband Plan identified all 194 MHz of BRS/EBS spectrum as "now coming online for mobile broadband deployment."[111]

Although the Commission offered additional reasons in 2008 for excluding certain blocks of BRS or EBS spectrum from the screen, those reasons are no longer valid, if they ever were. For example, the Commission excluded certain portions of BRS spectrum from the screen because certain segments of the band are authorized for high power operations or can be preserved as a duplex gap or guard band spectrum between mobile broadband and other uses.[112] Although certain BRS spectrum *can* be used for high-powered operations, that fact is irrelevant. Cellular and PCS can be used for fixed services, and lower 700 MHz C, D and E Block spectrum can be used for high powered broadcasts, yet all of these bands are included in the screen calculation as suitable and available because they can be used for mobile wireless services. To

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of Fixed and Mobile Broadband Access, Educational and Other Advanced Services in the 2150-2162 and 2500-2690 MHz Bands, 19 FCC Rcd. 14165 (rel. July 29, 2004) ("*BRS Report and Order*"); *see also* Order on Reconsideration and Fifth Memorandum Opinion and Order and Third Memorandum Opinion and Order and Second Report and Order, *Amendment of Parts 1, 21, 73, 74 and 101 of the Commission's Rules to Facilitate the Provision of Fixed and Mobile Broadband Access, Educational and Other Advanced Services in the 2150-2162 and 2500-2690 MHz Bands*, 21 FCC Rcd. 5606 (rel. Apr. 27, 2006).

[109] *Fifteenth Wireless Competition Report* ¶ 273 (transition to the revised band plan is "nearly complete" and "in 2008, Clearwire began deploying mobile broadband services using this spectrum in various markets around the country").

[110] *Fifteenth Wireless Competition Report* ¶ 276, Table 26; *see also* Fourteenth Report, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993*, 25 FCC Rcd. 11407, ¶ 259, Table 24 (2010) ("*Fourteenth Wireless Competition Report*").

[111] *National Broadband Plan* at 84-85, Exh. 5-F (identifying the full 194 MHz of BRS/EBS spectrum as part of today's 547 megahertz "[s]pectrum [b]aseline" that "is currently licensed as flexible use spectrum" and "can be used for mobile broadband").

[112] *See, e.g., Sprint-Clearwire Order* ¶¶ 67-70.

justify the exclusion of any segment of BRS/EBS spectrum simply because high power operations are also authorized would logically remove all mobile spectrum permitting flexible use from the screen. The bottom line is that all of the BRS/EBS spectrum is available and usable for mobile wireless services; it should all be counted. Indeed, in many markets, Sprint/Clearwire has full control of all 194 MHz of BRS/EBS spectrum for 4G services, including EBS, BRS-1, MBS, and the 4 MHz Guard Bands that the Commission has previously excluded from the screen.

Similarly, the Commission excluded up to 112.5 MHz of EBS spectrum in part because it is leased by Clearwire from other licensees,[113] but such arrangements provide no basis for excluding this spectrum from the screen. The Commission routinely attributes spectrum leases for cellular, SMR, PCS, and 700 MHz spectrum to *both* the lessor and the lessee.[114] Moreover, Clearwire's long-term leases of EBS spectrum offer far longer access to this spectrum than is true for typical leases, which are limited by the underlying license term.[115]

Nor do the other factors the Commission has cited with respect to EBS spectrum support exclusion from the screen. Although EBS spectrum is subject to a mandatory five percent capacity reservation for educational uses,[116] the education use may be simply access to capacity on a mobile broadband network deployed by Sprint/Clearwire. Moreover, even if the education use is a separate deployment of fixed service, that should not cause the spectrum to be

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[113] *Sprint-Clearwire Order* ¶¶ 71-72.

[114] *Accord* Second Report and Order, Order on Reconsideration, and Second Further Notice of Proposed Rulemaking, *Promoting Efficient Use of Spectrum Through Elimination of Barriers to the Development of Secondary Markets*, 19 FCC Rcd. 17507, ¶ 25 n.62 (rel. Sept. 2, 2004).

[115] *Compare* Description of the Transaction and Public Interest Statement, *In the Matter of Sprint Nextel Corporation and Clearwire Corporation Applications for Consent to Transfer Control of Licenses, Leases, and Authorizations*, WT Docket No. 08-94, at 40-41 (June 24, 2008) ("Sprint-Clearwire Public Interest Statement").

[116] *Sprint-Clearwire Order* ¶ 71.

considered unavailable for these purposes, any more than fixed deployments in the 700 MHz lower C block should cause that spectrum to be excluded. Again, the relevant question is not how the spectrum is currently being used, but whether the spectrum is available for mobile wireless service. All 194 MHz of BRS/EBS is available.

The Commission has also cited the fact that EBS licenses are site-specific and therefore have "white spaces" as a consideration weighing against inclusion in the screen.[117] But this cannot serve as a justification for excluding EBS spectrum as the Commission includes other types of spectrum that are also site-based and thus have "white spaces" gaps, most notably cellular spectrum.[118] In reality, the density of EBS licenses is very high, particularly in populated areas. Moreover, since Sprint/Clearwire hold both BRS and EBS spectrum, it has complete coverage through its BRS spectrum and even deeper capacity from EBS in the populated areas where deeper spectrum holdings can make the most significant difference. Accordingly, the mere existence of white spaces does not justify excluding EBS spectrum altogether.

In all events, to the extent Sprint/Clearwire believes that EBS white spaces are significant enough to make band unusable in some areas that is not a basis for an across-the-board exclusion of up to112.5 MHz of EBS spectrum. Rather, at most, it suggests that Sprint/Clearwire should have the burden of rebutting the presumption that the spectrum is not usable in particular markets. Only Sprint/Clearwire have access to data necessary to evaluate fully the extent of white spaces, and given Clearwire's public statements that EBS is prime broadband wireless spectrum, these entities should have the burden of proving otherwise.

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[117] *Id.*

[118] FCC, *FCC Encyclopedia: Cellular Service* (Feb. 13, 2012), http://www.fcc.gov/encyclopedia/cellular-service.

The Commission should also add several other categories of spectrum to the screen. For example, the Commission should include the 10 MHz of PCS G Block spectrum that Sprint is using for LTE services. As explained by Sprint in an October 2, 2012 letter to Chairman Genachowski, "Sprint is actively deploying 4G LTE mobile broadband communications services *nationwide* in the nearby PCS G Block (1910-1915 and 1990-1995 MHz)."[119] Sprint further claims that the SoftBank transaction will "enable Sprint to accelerate" its deployment of LTE in the PCS G Block.[120] This spectrum is clearly suitable for mobile services and it is already being used for that purpose.

Similarly, the Commission should add to the screen MSS/ATC spectrum that is owned by Dish, upon completion of its ongoing rulemaking to allocate that spectrum for terrestrial Mobile wireless services, and re-categorize it as "AWS-4" spectrum.[121] Dish has indicated that the 3GPP standards for the deployment of this spectrum for "LTE Advanced . . . [will be available] by December 2012," and that it plans to promptly roll out LTE Advanced services upon completion of the Commission's rulemaking to make that spectrum available for mobile use.[122] And finally, the Commission recently adopted rules that address interference issues that previously made the deployment of WCS spectrum unsuitable for mobile service. Under the rules adopted by the Commission, 20 MHz of this WCS spectrum is now suitable for mobile use

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[119] Letter from Stephen Bye & Lawrence R. Krevor (Sprint) to Chairman Genachowski (FCC), WT Docket No. 12-70, at 2 (Oct. 2, 2012).

[120] Sprint-SoftBank Public Interest Statement at 25.

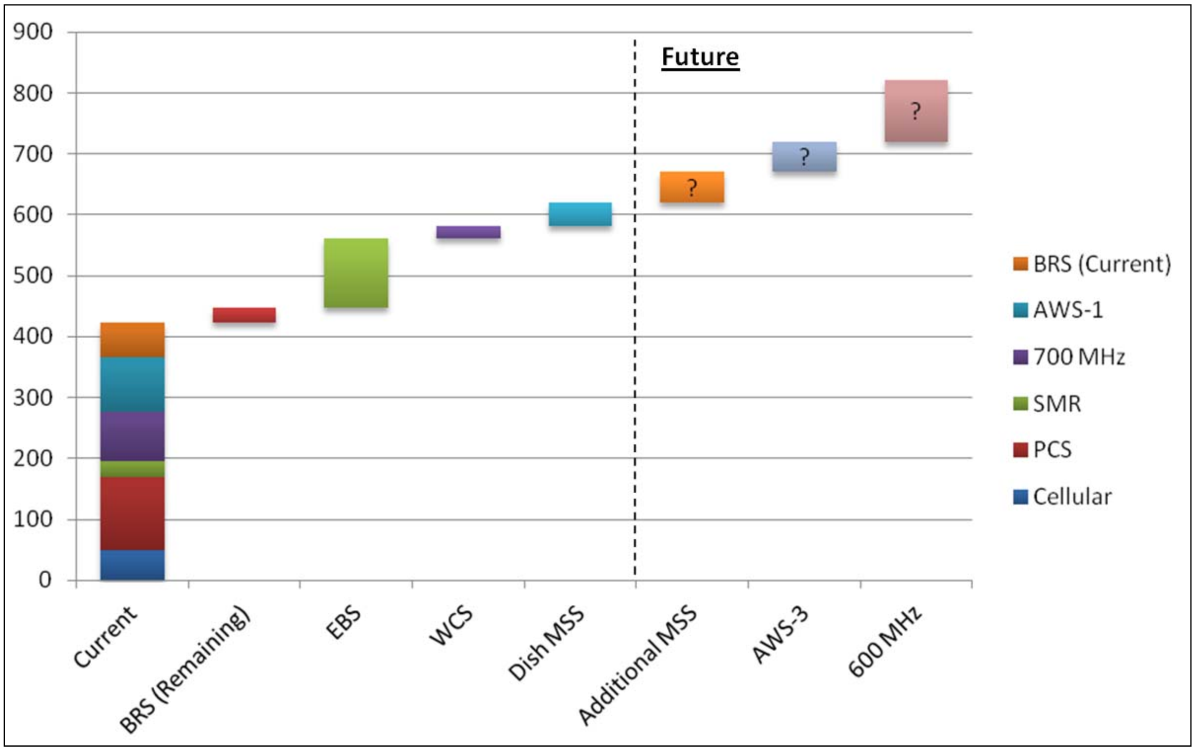
[121] *See* Notice of Proposed Rulemaking and Notice of Inquiry, *Service Rules for Advanced Wireless Services in the 2000-2020 MHz and 2180-2200 MHz Bands,* WT Docket No. 12-70, FCC 12-32 (March 21, 2012).

[122] Letter from Jeffrey H. Blum (Dish) to Marlene H. Dortch (FCC), WT Docket No. 12-70 (Aug. 28, 2012).

and should be added to the screen along with the BRS/EBS, PCS G Block, and MSS/ATC spectrum.[123]

The impact of these changes on the Commission's spectrum screen (and expected additional spectrum to be made available in the future) are set forth in Figure 5 below.

Figure 5. Available, Suitable Spectrum, Current And Future



[123] *See* Order on Reconsideration, *Amendment of Part 27 of the Commission's Rules to Govern the Operation of Wireless Communications Services in the 2.3 GHz Band*, WT Docket No. 07-293 (Oct. 17, 2012). Only 20 MHz of this spectrum is useable for mobile services because limitations imposed in the Commission's rules preclude *mobile* uses in the C and D Blocks of the 2.3 GHz band. At most, the 10 MHz of spectrum associated with those blocks might be useable for *fixed* broadband services. On the other hand, Lightsquared has proposed to use 40 MHz of MSS/ATC spectrum (1526-1536 MHz, 1670-1680 MHz, 1627-1637.5 MHz, and 16467-1656.7 MHz) to deploy its LTE network. *See also* Petition for Rulemaking, *LightSquared Subsidiary LLC, Petition for Rulemaking to Revise the Commission's Technical Rules*, IB Docket No. 12-340 (Sept. 28, 2012). To the extent that the Commission grants Lightsquared's request and approves some or all of this spectrum for terrestrial mobile services, that spectrum should be immediately added to the screen upon approval.

Not only should the Commission update the screen in this proceeding, but it should also establish a process in which it will update the screen on a regular, annual basis through rulemakings.[124] One of the significant uncertainties in the way the Commission currently administers its framework is that providers can never be sure what spectrum the Commission will include in the screen. Until recently, the Commission followed a consistent practice by keeping all spectrum in the screen that it had included in past analyses and sometimes adding other spectrum that had recently been made available. This practice of updating the screen on an *ad hoc* basis in the context of individual transfer of control proceedings did not generate uncertainty, however, until the Commission began to abandon the consistency of its practice—by, for example, excluding spectrum like BRS/EBS that was not only available but actually in use for mobile wireless services; suggesting that certain spectrum that had been previously been included in the screen now be excluded, even though it had been and remained actually in use for mobile wireless services; suggesting that the screen might be arbitrarily changed to count certain bands of mobile spectrum separately; and in one case, abandoning the screen analysis completely to force a redistribution of spectrum in a transaction that was below the safe harbor and where the Department of Justice found no cause for competitive concern.[125]

To ensure that participants in the auction and secondary market processes know in advance the spectrum screen's thresholds, the Commission should conduct annual rulemakings to make any appropriate adjustments to the spectrum screen using its "suitability" and

[124] *Notice* ¶ 27 (seeking comment on whether Commission should adopt a "regular process to add or remove existing or newly allocated spectrum bands" for assessing spectrum aggregation thresholds).

[125] *See Sprint-Clearwire Order* ¶¶ 5, 61-63; Order, *Application of AT&T Inc. and Qualcomm Incorporated for Consent to Assign Licenses and Authorizations*, 26 FCC Rcd. 17589, ¶ 42 (rel. Dec. 22, 2011) ("*AT&T-Qualcomm Order*"); *Notice* ¶¶ 35-39; *Verizon-SpectrumCo Order* ¶¶ 64-65.

"availability" framework. Such rulemakings would provide all interested parties an opportunity to present evidence relating to what categories of spectrum would be appropriate for inclusion in the aggregation analyses, and the resulting screens would be based on a full factual record and judicial oversight, which would restore much-needed transparency and predictability to the process.[126] The screen adopted in these proceedings would be applied prospectively to all spectrum accumulations proposed thereafter in the period until the next periodic review (whether by spectrum acquisition or by auction), and any proposed accumulation up to that safe harbor threshold would be approved as a matter of course without further scrutiny, while proposed aggregations above the threshold would be analyzed to determine whether any significant risk of foreclosure was presented.[127]

In order to ease the burden on the industry and the Commission alike, and ensure timely updating of the spectrum aggregation screens, the process for updating the screens should be conducted in tandem with the Commission's annual wireless competition report proceedings. In issuing its annual competition reports, the Commission gathers data on and undertakes an analysis of the extent to which spectrum is being used for mobile wireless services. At the time the Commission issues its Notice of Inquiry for the wireless competition report proceeding, it should also issue a Notice of Proposed Rulemaking regarding updating the screen that would

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[126] *See* Reply Comments of AT&T Inc., *The State of Mobile Wireless Competition*, WT Docket No. 11-186, at 22-25 (Dec. 20, 2011). As AT&T has shown elsewhere, the Commission should update the existing spectrum screens to include three additional categories of spectrum that are currently being used or will imminently be used to provide mobile wireless services. Comments of AT&T Inc., *The State of Mobile Wireless Competition,* WT Docket No. 11-186, at 39-42 (Dec. 5, 2011).

[127] Of course, one fact that could be considered in the case-by-case review is whether any new spectrum has become available since the last rulemaking proceeding or whether any will become available on the near-term horizon.

incorporate the record from the wireless competition report proceeding. The Commission should be in position to issue a final order updating its screens within 60 days after receiving comments.

Finally, this approach properly recognizes that the relevant product market is any mobile wireless service, because spectrum that is "suitable" and "available" to provide mobile wireless services can be used in a fungible manner to provide any mobile service, be it voice or data.[128] There is no basis to subdivide the set of suitable spectrum into different "product markets" relating to different downstream retail services, such as voice and data services.[129] Such an approach would improperly conflate *retail* voice and data services with the *input* market for spectrum. Mobile spectrum is a fungible *input* that is used to provide both voice and data retail services. "[A]ny screen that attempted to target only spectrum used for voice or only spectrum used for data would be meaningless due to the fungibility of spectrum across services."[130] Moreover, even technical distinctions between voice and data services from the point of view of providers are rapidly receding; providers are on the verge of deploying Voice Over LTE ("VoLTE"), which is a *data* service like any other data service.

B. The Commission Should Eliminate Geographic Variations In The Spectrum Screen Based Upon Outdated Availability Issues

When the Commission expanded the spectrum screen to include AWS and BRS spectrum in 2008, it included that spectrum only to the extent the spectrum was "available."[131] In the case of BRS, the spectrum is included "where the [BRS/EBS] transition has been completed"[132] and in the case of AWS, the spectrum is included "in markets that have already been cleared [of

[128] *See* Katz-Israel Decl. ¶ 73.

[129] *See Notice* ¶ 25.

[130] Katz-Israel Decl. ¶ 73.

[131] *Verizon-ALLTEL Merger Order* ¶ 64; *Sprint-Clearwire Order* ¶ 74.

[132] *Sprint-Clearwire Order* ¶ 70.

Federal incumbents].”[133] As discussed below, the “availability” distinction in both of these cases should be removed in light of the current commercialization of both of these bands.

With respect to BRS, the Commission noted in the *Sprint-Clearwire Order* that “the [BRS/EBS] transition has been completed in 337 out of 493 Basic Trading Areas (BTAs)” and that, “[i]ndeed, all BRS licensees must be operating and be able to demonstrate substantial service by May 1, 2011 or lose their licenses, a requirement that should further accelerate completion of the transition.”[134] In this regard, the BRS/EBS transition started on January 10, 2005 when the Commission’s revised band plan for the BRS/EBS band became effective,[135] so at the time of the *Sprint-Clearwire Order*, the transition had been ongoing for less than three years. Today, the transition has been ongoing for nearly eight years, the substantial service demonstrations were filed almost a year ago, there have been only four filings in the docket established for post-transition notices in 2012 (0.3% of the filings in the docket overall),[136] and there is no basis for continuing to impose the administrative burden of conducting BRS availability checks for routine transactions. The Commission should consider BRS/EBS spectrum available in all markets for any prospective rule adopted.

Similarly, AWS licenses were generally granted in late 2006 following the Commission’s Auction No. 66. The auctioned spectrum included the 1710-1755 MHz band, which was used by Federal government incumbents. At the time the AWS band was included in the screen, the Commission stated that “[r]ecent information available to us now indicates that substantial progress continues to be made in clearing AWS-1 spectrum and that widespread deployment of

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[133] *Sprint-Clearwire Order* ¶ 72.

[134] *Id.* ¶ 66.

[135] *See, generally*, FCC, *Licensing: Transition Plan,* http://wireless.fcc.gov/services/index.htm?job=licensing_2&id=ebs_brs.

[136] *See Transition of the 2500-2690 MHz Band for BRS and EBS*, WT Docket No. 06-136.

mobile services using AWS-1 spectrum will be occurring in the near term," and that "[o]ur records show that AWS-1 spectrum has been cleared in approximately two-thirds of all counties."[137] Today, the vast majority of all Federal systems have now been cleared from 1710-1755 MHz and the AWS band is one of the principal bands used for 3G and 4G offerings. The National Telecommunications and Information Administration ("NTIA"), which oversees the transition of the 1.7 GHz band, last issued 1710-1755 MHz data, which is what carriers use to assess "availability," in December of 2011. Those data show less than 150 transmitter sites still in use – many in remote areas, which may reflect that carriers have not sought to have the links relocated to other bands. Like the BRS/EBS spectrum, no basis remains for continuing to require county-specific analyses of AWS availability – especially given the latency of the NTIA data available – and the Commission should consider all AWS spectrum as available on a prospective basis.

C. The Commission Should Increase The Screen's One-Third Threshold.

The Commission should also recognize that the screen's current threshold of approximately one-third is too low. As Professor Katz and Dr. Israel explain, a screen that is set too low harms consumers and competition by increasing the costs, regulatory uncertainty, and administrative complexity of spectrum transfers that should be approved promptly in the public interest.[138] The Commission has always acknowledged that the screen, which is designed to "eliminate from further review those markets in which there is clearly no competitive harm relative to today's generally competitive marketplace," is "conservative,"[139] and now is the time to increase the screen's threshold.

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[137] *Verizon-ALLTEL Merger Order* ¶ 66.

[138] *See* Katz-Israel Decl. ¶ 57.

[139] *AT&T-Cingular Merger Order* ¶ 108.

Even to the extent that foreclosure concerns remain valid, a decade of experience with the screen confirms that one-third is unnecessarily restrictive. *First*, as explained in Section I, *supra*, when the Commission established the current screen in 2004, it relied in part on the competitiveness of the marketplace in setting the screen's threshold at approximately one-third of the available spectrum,[140] and the marketplace today is much more competitive than it was a decade ago.[141]

Second, under the current screen, there have been many cases in which one firm held more than one-third of the available spectrum, and yet experience confirms that competition has flourished in those markets, just as it has throughout the nation, with declining prices, rising output, innovation and quality improvements.[142] Moreover, in the numerous markets in which one competitor holds more than one-third of the spectrum, there are typically four, five, or more competitors in those markets, indicating that spectrum holdings alone do not threaten competition. The following table, prepared at the direction of Professor Katz and Dr. Israel, summarizes the data.[143]

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[140] *Second Biennial Review Order* ¶¶ 2, 6; *see also AT&T-Cingular Merger Order* ¶ 109.

[141] Katz-Israel Decl. ¶ 58 ("by this metric 'meaningful economic competition' has only increased since the order removing the cap; today nearly as large a percentage of residents lives in an area served by five or more providers as lived in areas served by three or more providers in 2000").

[142] *See supra* pp. 25-26; *see also* Katz-Israel Decl. ¶¶ 52, 58-59.

[143] *Id*. ¶ 59 & Table 1. Indeed, as these data show, CMAs in which one provider exceeds the screen are actually more likely to have at least three or at least four major competitors than CMAs that do not. *Id.* In addition, if all of Clearwire's spectrum holdings are attributed to Sprint (as Sprint concedes they are under the Commission's attribution policy), Sprint would exceed the one-third safe harbor in many markets across the country, and yet competition has flourished in those markets.

Table 1. Share of CMAs as Determined by Whether a License Holder Exceeds the Current Screen and the Number of Competitors.[144]

	No. of Competitors				
	1	2 or more	3 or more	4 or more	5 or more
Share of CMAs where no holder exceeds the screen	1%	99%	89%	66%	37%
Share of population in CMAs where no holder exceeds the screen	0%	100%	98%	90%	71%
Share of CMAs where at least one holder exceeds the screen	0%	100%	96%	70%	30%
Share of population in CMAs where at least one holder exceeds the screen	0%	100%	98%	90%	57%

Indeed, the current screen is based on a far too pessimistic view of how much spectrum a provider needs to compete effectively. The screen rests largely on an unrealistic assumption of equal-sized carriers; the screen is set at approximately one-third because, in a worst-case scenario, such a screen would guarantee at least three major competitors in a market. In reality, a marketplace full of equal-sized competitors rarely occurs in any industry, and raising the threshold above one-third does not imply that the resulting marketplace will have three or fewer competitors. To the contrary, as Professor Katz and Dr. Israel explain, a large percentage of effective competitors in today's wireless markets compete successfully with significantly less than one-third of the available spectrum.[145] In fact, there is substantial variation between spectrum holdings and market share: some providers have substantial market shares in various markets even where they hold a small percentage of the overall spectrum, whereas other providers have small market shares in some markets even where they hold substantial percentages of the available spectrum.[146]

There is every reason to expect that some providers will need larger amounts of spectrum while others can compete very effectively with smaller percentages of the available spectrum. In

[144] *Id.*

[145] *Id.* ¶¶ 60-63.

[146] *Id.* ¶ 62 & Figure 1.

particular, competitors that have invested the most and have gained the most customers through innovation and investment often need more spectrum than newer entrants. Older incumbent providers typically need a larger absolute amount of spectrum to enable them to serve larger embedded bases of customers that are relying simultaneously on multiple generations of wireless technology. New entrants, by contrast, can serve their customers at the same or higher quality levels with less spectrum because they can leapfrog older technologies altogether and offer service using only the latest and most spectrally efficient generation of wireless technology.[147] As Professor Katz and Dr. Israel explain, there are numerous examples of such newer entrants. MetroPCS has 20 MHz or less of spectrum in 73 of 78 CMAs in which it competes, and has achieved an estimated market share of at least 10 percent in 17 CMAs in which it holds 20 MHz or less.[148] Similarly, Leap has achieved an estimated market share of at least a 10 percent in 14 CMAs in which it has 20 MHz or less of spectrum (and in three of those CMAs, it has achieved more than 20 percent market share).[149] US Cellular has achieved estimated market shares in excess of 50 percent in a number of CMAs.[150]

Indeed, as Professor Katz and Dr. Israel show, and as graphically illustrated below in Figure 6, wireless firms in the top 50 CMAs have achieved a very broad array of market shares with a very broad array of spectrum holdings. Put simply, there is simply no "tight relationship between spectrum share and market share [and thus] no basis to conclude that more spectrum

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[147] *Id.* ¶ 60.

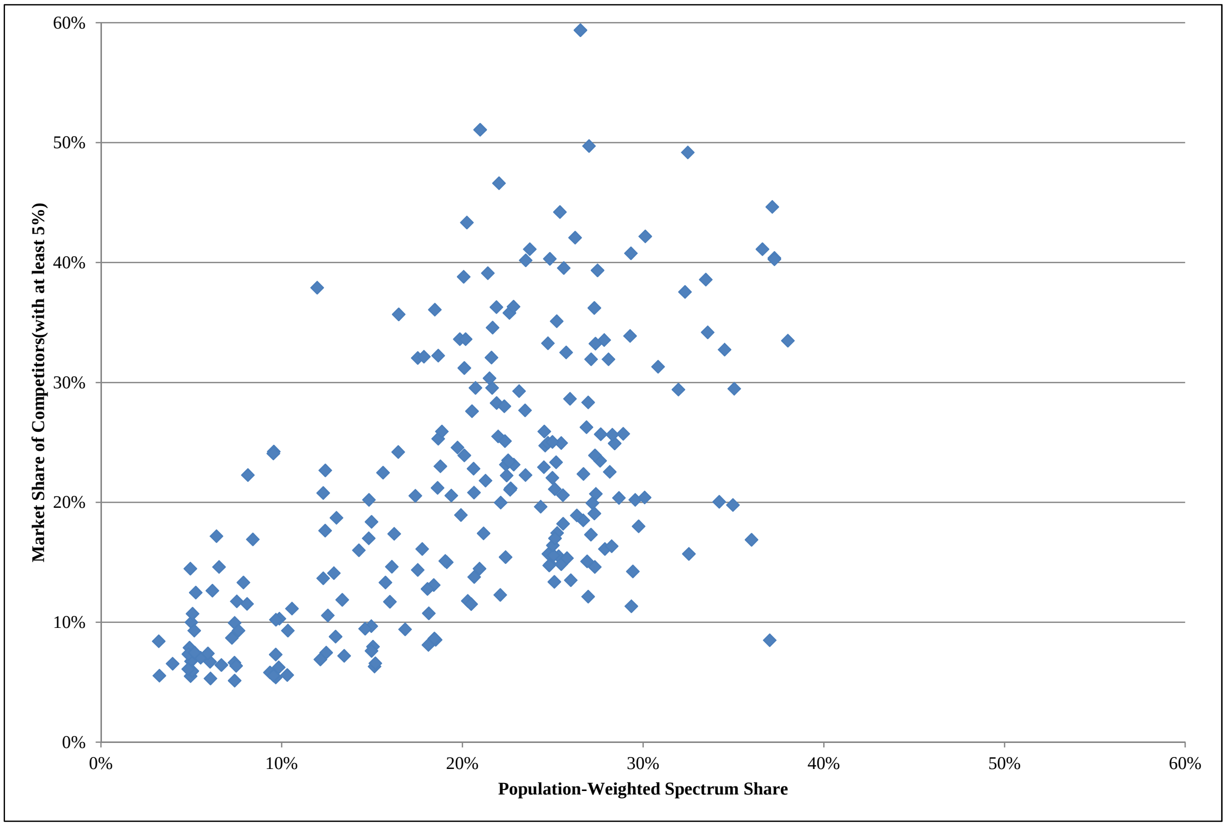
[148] *Id.* ¶ 61.

[149] *Id.*

[150] *Id.*

equates to dominance or the ability to foreclose competition, certainly not if the additional spectrum simply pushes a firm slightly above the current one-third screen."[151]

Figure 6. Population-Weighted Spectrum Share And Market Share Of Competitors In 50 Largest CMAs (With At Least 5 Percent)



The current safe harbor screen is thus extremely conservative and could therefore unduly discourage incumbents from seeking additional spectrum in cities where they are capacity constrained, even though such acquisitions would result in higher quality service for consumers and would not threaten foreclosure of competition.[152] What matters most is not the absolute amount of spectrum any provider holds, but that providers that have made the investment to

151 *Id.* ¶ 62.

152 *See id.* ¶ 57.

deploy mobile wireless services to obtain customers have the ability to obtain additional spectrum as they continue to invest and innovate.

Third, as Professor Katz and Dr. Israel explain, the fact that more spectrum is available to competitors today in absolute terms than there was when the one-third screen was adopted also supports raising the threshold now. Even if a carrier gains access to more than one-third of the available spectrum, there will be a greater absolute amount of spectrum left over today that would still permit several other competitors to compete effectively.[153] For example, in a market in which 500 MHz is available, the Commission could permit a single carrier to acquire forty percent (200 MHz) of that spectrum, and there would still be enough spectrum left over to support four other providers each using 75 MHz of spectrum (or other combinations, such as two using 125 MHz each and a third using 50 MHz).

Finally, it bears emphasis that any competitively significant spectrum transaction is likely to be reviewed by the Department of Justice. To the extent that a spectrum transfer could plausibly permit the acquiring company to foreclose retail competition, the Department will conduct a thorough review.[154] And with regard to spectrum auctions, those typically involve making *incremental* spectrum available, which both *increases* the total supply of spectrum in the market and is unlikely to involve an amount of spectrum that would allow the acquiring company to undertake foreclosure.[155]

In sum, as the Commission itself acknowledged when it established the (roughly) one-third screen, "although 70 MHz represents a little more than one-third of the total bandwidth available for mobile telephony today, we emphasize that a market may contain more than three

[153] *See id*. ¶¶ 63-64.

[154] *Id*. ¶ 65.

[155] *Id*. ¶ 68.

viable competitors even where one entity controls this amount of spectrum, because many carriers are competing successfully with far lower amounts of bandwidth today."[156] That conclusion is even more true today, and the Commission should therefore increase the screen's threshold.

D. The Commission Should Reaffirm That The Spectrum Screen Is A Safe Harbor.

When the Commission originally established the spectrum screen, it made clear that it would function as a true safe harbor. In other words, if a transaction did not trigger the spectrum screen in a given market, the Commission made clear that it would not conduct a further inquiry as to whether the applicant was acquiring "too much" spectrum in that market, or whether the aggregation of spectrum in and of itself posed any threat to competition.[157]

In recent years, however, the Commission has begun to suggest that the safe harbor is not actually "safe" at all, and that even if a spectrum transfer does not exceed the screen, the Commission may nonetheless conduct further inquiries into whether the aggregation of spectrum would pose a competitive concern according to other, undefined "special circumstances" or the "totality of the circumstances."[158]

The Commission should strongly re-affirm that the spectrum screen is a true safe harbor, such that the Commission will conduct no further inquiry into the effects of spectrum

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[156] *AT&T-Cingular Merger Order* ¶ 109.

[157] *Id*. ("[I]n line with the conservative approach embodied in this initial screen, the function of which was simply to eliminate from further consideration any market in which there is *no potential for competitive harm* as a result of this transaction, we subjected to further review any market in which one entity controls more than one-third of [the spectrum].").

[158] *Verizon-ALLTEL Merger Order* ¶ 91; *Verizon-SpectrumCo Order* ¶ 48. *See, e.g., AT&T-Qualcomm Order* ¶¶ 49-50; *AT&T-Centennial Order* ¶ 71.

aggregation to the extent that a spectrum transfer does not exceed the screen.[159] As Professor Katz and Dr. Israel explain, economic theory supports an asymmetrical mechanism for promoting predictability: establishing a size *below which* market power is unlikely to exist (and thus will merit no further investigation) but preserving the flexibility to determine whether transactions above the screen pose a danger based on further inquiry into the specific competitive conditions in the local markets at issue.[160] True safe harbors "serve the Commission's goal of reducing uncertainty about the ability to acquire spectrum and thereby help to promote private investment incentives."[161] At the same time, a "case-by-case" review of above-threshold transactions allows for meaningful consideration of the competitive effects of transactions that fall outside the safe harbor, including the existence of alternative competitors, the availability of other spectrum, and the efficiencies that will be achieved by those transactions.

Introducing regulatory uncertainty for those spectrum transfers that remain below the safe harbor screen creates harmful disincentives to engage in beneficial investments and undermines an important pillar of the Commission's framework, effectively allowing an unwarranted degree of regulatory flexibility to destroy predictability altogether.[162] As explained in Section I, that type of uncertainty creates serious marketplace harms, and the Commission should promptly restore the proper balance between predictability and flexibility by reaffirming that the screen is a safe harbor.

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[159] *Notice* ¶¶ 33-34.

[160] Katz-Israel Decl. ¶¶ 55-56.

[161] *Id.* ¶ 56.

[162] *Id.* ¶¶ 54-55.

E. If A Transaction Triggers The Spectrum Screen, The Commission's Case-by-Case Analysis Should Focus Only On Whether the Accumulation Of Spectrum Would Foreclose Competition.

For the geographic areas in which a licensee's post-transaction spectrum holdings will exceed the safe harbor screen, the Commission should also reaffirm that its spectrum aggregation analysis will remain tightly focused on the only relevant question it is intended to answer: whether the transaction puts so much spectrum in the hands of a single provider that the process of competition itself would be significantly impaired.[163] Accordingly, in areas where the screen is exceeded, the Commission's focus should remain on whether the spectrum available to competitors and potential competitors is sufficient to enable robust facilities-based competition to continue.[164]

If multiple facilities-based firms are already providing competing mobile services using some or all of the remaining spectrum, or where competitors have imminent plans to do so, and these providers have sufficient capacity to compete for customers should a would-be "forecloser" seek to raise prices, the spectrum transfer at issue is unlikely to harm competition.[165] To the extent that competitors are not already using, or planning to use, the remaining spectrum to provide competing services, the Commission should conduct a forward-looking analysis to evaluate potential entry using the remaining spectrum.[166] For example, to the extent that competitors are using similar types and amounts of spectrum to provide competitive services in other areas, the Commission should conclude that the spectrum can also support competition in

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[163] *See* Katz-Israel Decl. ¶¶ 8, 54-55.

[164] Thus, in transactions that involve assignments of spectrum only (whether through secondary market transactions or auction), any competitive review for above-screen transactions would be limited to foreclosure concerns. A broader competitive analysis would only be undertaken in connection with transactions that involve the transfer of wireless systems or customers.

[165] *See id*. ¶ 55.

[166] *See id*.

the area under review, absent a finding of barriers to entry that are idiosyncratic to the area under review. Moreover, the Commission's analysis should be forward-looking and should account for new spectrum that is likely to become available in the near term to provide competing service in that area and any efficiencies created by the transaction.[167]

F. To the Extent The Commission Determines That A Proposed Spectrum Acquisition Would Be Likely To Foreclose Downstream Competition, It Should Impose A Limited Remedy Designed To Address The Transaction-Specific Harm.

1. In Cases Where A Divestiture is Required In a Given License Area, the Acquiror Should be Permitted to Determine What Spectrum to Divest and to Whom.

Finally, with respect to remedies, the Commission should reaffirm that remedies will be imposed only when, after careful review, the Commission concludes that a spectrum acquisition would be likely to foreclose downstream competition. Moreover, the remedies imposed should be limited in purpose: they should interfere with the market only to the extent necessary to prevent the likelihood of foreclosure in the affected local markets. In most cases, this can be accomplished most effectively by limited divestitures of spectrum.

The Commission should also reaffirm that if it concludes that a limited spectrum divestiture is required, it will allow the acquirer to determine what spectrum to divest and to whom. As Professor Katz and Dr. Israel explain, the efficient allocation of spectrum (including divested spectrum) is maximized where it is sold in secondary markets, which ensures that it is allocated to the highest value user.[168] Accordingly, in areas where a spectrum acquisition would result in the purchaser obtaining an amount of spectrum that is found to pose a competitive risk, the proper remedy is to give the purchaser discretion to divest spectrum in the secondary

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[167] *See id*.

[168] Katz-Israel Decl. ¶ 114.

marketplace. The Commission should not impose special rules or requirements in an attempt to steer the transaction in one direction or another, which could result in the spectrum being allocated to a use that is less valued than the allocation that would result from the secondary market.

Opponents of recent spectrum transactions have introduced uncertainty into the Commission's framework by asking the Commission to micromanage the divestiture process in ways that are designed to give them a competitive advantage (either in the retail marketplace or in buying the divested spectrum), while reducing the capabilities of their competitors. These proposals have included dictating which spectrum will be sold and which carriers will be permitted to purchase it.

The Commission should reaffirm here that such proposals are improper. The remedial policies adopted by the Commission should be designed to mitigate the spectrum aggregation harms they are attempting to address, and nothing more.[169] If the Commission finds that an applicant should divest spectrum, the applicant should be permitted to divest the spectrum on the secondary market subject only to the same spectrum aggregation framework that would otherwise apply. The applicant in a proceeding is in the best position to determine which of its spectrum best fits with its network and deployment plans, and which spectrum should therefore be divested. And, the marketplace should determine to whom the spectrum is sold, to ensure that it goes to its highest value use.[170]

Similarly, no legitimate purpose could be served by requiring divestitures of spectrum outside the areas where the purchaser's spectrum exceeds the screen. As explained above, and as the Commission has recognized, transactions that do not result in spectrum holdings exceeding

[169] *Id*. ¶ 106.

[170] *See id*. ¶¶ 113-114.

the safe harbor screen in a particular area are, by definition, pro-competitive. Forcing carriers to divest spectrum in areas where they are already below the screen would thus serve no legitimate purpose and could only harm competition.

Finally, the *Notice* seeks comment on how to implement divestitures or other remedies in the context of auctions.[171] As Professor Katz and Dr. Israel explain, the best approach is to apply the spectrum screen and the case-by-case approach to the *outcome* of auctions.[172] In other words, the Commission should not attempt to preemptively limit auction eligibility or participation, but rather should apply its spectrum aggregation analysis after an auction closes to determine whether the outcome of an auction would threaten foreclosure of competition. Accordingly, the Commission should permit all parties to participate in auctions, and where the auctions results in a provider obtaining spectrum above the safe harbor in a particular area, the Commission should determine at that point whether such holdings would foreclose competition in that area. If so, the Commission should permit the purchaser to divest spectrum of its choice to purchasers of its choice in that area, just as would occur in the context of any other spectrum purchase. Such an approach allows a provider to achieve efficiencies by rationalizing its spectrum holdings and creates no risk to competition.[173]

2. "Conditions" that Do Not Remedy Any Harms Specific to the Spectrum Acquisition Under Review Should be Rejected.

As a general rule, the structural remedy of limited spectrum divestiture is the most appropriate remedy to cure a spectrum aggregation that the Commission determines will threaten foreclosure of competition. Behavioral remedies are less likely to resolve the harm identified,

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[171] *Notice* ¶¶ 44-48.

[172] Katz-Israel Decl. ¶¶ 67-69.

[173] *Id.* ¶ 69; *see also Fourteenth Wireless Competition Report* ¶ 272.

and would require unnecessary continuing regulation of the parties by the Commission to administer.

In no event, however, should the Commission consider the impositions of conditions unrelated to the transaction-specific harms identified.[174] For example, proposals to regulate the price of special access circuits, or the rates or availability of roaming, or whether to mandate that carriers move from one 3GPP band to another, clearly are unrelated to spectrum aggregation concerns.

The Commission has repeatedly and correctly emphasized that its license transfer review proceedings are "limited to consideration of [transaction]-specific effects"[175] and that it "will not impose conditions to remedy pre-existing harms or harms that are unrelated to the transaction."[176] That is particularly true for "matters that are the subject of other proceedings before the Commission, because the public interest would be better served by addressing the matter in the broader proceeding of general applicability."[177] Expanding the scope of a spectrum

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[174] *Notice* ¶ 46.

[175] Memorandum Opinion and Order, *In the Matter of Applications for Consent to the Transfer of Control Licenses From Comcast Corporation and AT&T Corp. to AT&T Comcast Corporation*, 17 FCC Rcd. 22633, ¶ 11 (rel. Nov. 6, 2002). *See also, e.g.,* Memorandum Opinion and Order, *Verizon Communications Inc. and MCI, Inc. Applications for Approval of Transfer of Control*, 20 FCC Rcd. 18433, ¶ 19 (rel. Nov. 17, 2005); Memorandum Opinion and Order and Declaratory Ruling, *IT&E Overseas, Inc. and PTI Pacifica Inc.*, 24 FCC Rcd. 5466, ¶ 14 (rel. May 12, 2009); Memorandum Opinion and Order, *Applications for Consent to the Assignment and/or Transfer of Control Licenses from Time Warner Inc. to Time Warner Cable Inc.*, 24 FCC Rcd. 879, ¶ 13 (rel. Feb. 11, 2009); Memorandum Opinion and Order, *SBC Communications Inc. and AT&T Corp. Applications for Approval of Transfer of Control*, 20 FCC Rcd. 18290, ¶ 20 (rel. Nov. 17, 2005).

[176] *Verizon-ALLTEL Merger Order* ¶ 29.

[177] *See, e.g., AT&T-Qualcomm Order* ¶¶ 71, 75, 77-79; *see also AT&T-Cingular Merger Order* ¶ 183 (Commission should "develop a comprehensive approach based on a full record that applies to all incumbent LECs so that the Commission treats similarly-situated incumbent LECs in the same manner"); Memorandum and Opinion Order, *General Motors Corp. and Hughes Elec. Corp. and The News Corporation Limited for Authority to Transfer Control,* 19 FCC Rcd. 473, ¶

transfer proceeding to issues that are not transaction-specific has many harmful consequences: it slows the review process, increases regulatory uncertainty, and creates disincentives for investment.[178] Indeed, if the Commission consistently entertains these types of arguments, Commission review proceedings ultimately become "rent-seeking free-for-alls in which rivals and other interested parties seek to protect (or enrich) themselves rather than protect competition."[179]

The better approach is for the Commission to reaffirm that it will address industry-wide issues only in separate rulemakings where the Commission can make informed decisions that reflect input from all interested parties, and that are subject to judicial review. This approach ensures a level competitive playing field, facilitates competition-enhancing transactions, and ensures that any requirements reflect the input of all interested parties, not just those of the parties to a particular transaction proceeding.

III. THE COMMISSION SHOULD REJECT PROPOSALS TO MAKE ARBITRARY DISTINCTIONS AMONG SPECTRUM BANDS, TO SECOND GUESS WIRELESS ENGINEERING JUDGMENTS, AND TO IMPOSE "NATIONAL" SPECTRUM LIMITS.

The *Notice* also seeks comment on a wide variety of more fundamental changes to the implementation of the spectrum screen that various opponents of recent spectrum transactions have advocated. These include proposals that the Commission (i) make arbitrary distinctions among spectrum bands based on whether the spectrum is above or below 1 GHz; (ii) second-guess license transfer applicants' engineering judgments, assess whether applicants are making

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131 (rel. Jan. 14, 2004) ("*GM-Hughes Order*") ("An application for a transfer of control of Commission licenses is not an opportunity to correct any and all perceived imbalances in the industry. Those issues are best left to broader industry-wide proceedings.").

[178] Katz-Israel Decl. ¶ 106.

[179] *Id.*

efficient enough use of their existing spectrum holdings, or otherwise judge whether an applicant "really needs" the spectrum in question; and (iii) impose some sort of national "average" spectrum holding limits. The Commission should reject all of these proposals as inconsistent with basic principles of economics and engineering and the flexibility service providers need to develop advanced wireless services.

A. The Commission Should Not Make Distinctions Among Bands For Purposes Of The Spectrum Screen.

The *Notice* asks whether the Commission should modify its spectrum screen to account for the different characteristics of high and low frequency spectrum or claimed impacts of aggregation of particular bands.[180] As demonstrated below, each of these proposals should be rejected as both factually and economically unsound and impractical to implement.

1. Differences Between Low and High Frequency Spectrum Do Not Justify Changes in the Commission's Spectrum Screen Policies.

The *Notice* notes that lower frequency spectrum can have advantages in terms of coverage, whereas higher frequency spectrum can have advantages in terms of capacity, and posits that "both types of spectrum may be helpful for the development of an effective nationwide competitor."[181] Based on this observation, the *Notice* seeks comment on whether the Commission should depart from its traditional spectrum screen that focuses on capacity and instead "evaluate[] a licensee's mobile spectrum holdings" in an manner "that accounts for differing characteristics of spectrum bands."[182] The *Notice* lists a variety of proposals, ranging from separate screens for high and low frequency spectrum to spectrum weighting schemes that would count some bands of spectrum more than others in determining whether the spectrum

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[180] *Notice* ¶ 9.

[181] *Id* ¶ 35.

[182] *Id*.

screen is exceeded. For the reasons that follow, whatever operational differences may exist between low and high frequency spectrum do not justify any changes in the spectrum screen.

First, the Commission has consistently and correctly refused to "differentiate[] among bands used on specific propagation characteristics or purported distinctions in trading value."[183] From its earliest incarnation as an inflexible cap to its current role as a safe harbor that "eliminates from further review those markets in which there is clearly no competitive harm,"[184] the Commission's spectrum aggregation policy has always focused on spectrum *capacity*, and for good reason. The spectrum screen is a tool to implement spectrum aggregation policy, which seeks to prevent any mobile service licensee from aggregating such large amounts of available spectrum capacity that it "might exert undue market power or inhibit market entry by other service providers."[185] Because the data-carrying capacity of all relevant spectrum bands is equal – 20 MHz of AWS spectrum can carry as much wireless broadband data traffic as 20 MHz of 700 MHz spectrum[186] – the spectrum screen correctly counts all spectrum equally.[187]

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[183] *See, e.g., Sprint-Clearwire Order* ¶ 63; Memorandum Opinion and Order, *Applications of AT&T Inc. and Centennial Communications Corp. for Consent to Transfer Control of Licenses, Authorizations, and Spectrum Leasing Arrangements*, 24 FCC Rcd. 13915, ¶¶ 49-50 (rel. Nov. 5, 2009) ("*AT&T-Centennial Order*") (rejecting argument that applicant "should not control the spectrum with the most desirable propagation characteristics" and declining "to apply any additional scrutiny beyond a case-by-case review of the facts of the particular markets where spectrum aggregation exceeds our spectrum screen or involves cellular overlaps"); *Applications of AT&T Inc. & Cellco Partnership d/b/a Verizon Wireless for Consent to Assign or Transfer Control of Licenses & Authorizations & Modify a Spectrum Leasing Arrangement, Memorandum Opinion and Order*, 25 FCC Rcd. 8704, ¶ 45 (rel. June 22, 2010) ("*AT&T-Verizon Order*") ("In evaluating this transaction, we decline to analyze whether, generally, the Applicants have an unfair advantage in terms of the quantity and quality of spectrum that they hold.").

[184] *AT&T-Centennial Order* ¶ 46.

[185] *CMRS Third Report and Order* ¶ 239; *see also AT&T-Cingular Merger Order* ¶ 108-109 (purpose of spectrum screen is to assess post-transaction availability of "bandwidth" (*i.e.*, capacity) to competitors).

[186] Reed-Tripathi Qualcomm Decl. at 9.

The very industry dynamics the Commission cites as the impetus for this *Notice* also confirm that the proper focus is on spectrum capacity. The Commission notes the growing use of high-capacity devices and the corresponding growth in "global mobile data traffic," leading to circumstances where "'the spectrum currently allocated to wireless is not sufficient to handle the projected growth in demand ….'"[188] The Commission expressly identifies the central issue as how "wireless service providers can increase network capacity to satisfy increasing demand."[189] In other words, the challenge providers face is one of a shortage of capacity, not an issue of propagation characteristics or operational or value differences between lower and higher-band spectrum. The *Notice*'s focus on lower-band spectrum is particularly misplaced given that the Commission has acknowledged that higher-band spectrum "may be well suited for adding capacity."[190]

Second, while high-band and low-band spectrum have their relative advantages, it does not follow, and is not the case, that "both types of spectrum" are needed for a national or large regional network.[191] In fact, providers have successfully deployed national and large regional networks using only high frequency spectrum. T-Mobile, for example, has deployed a nationwide network using only AWS (1700/2100 GHz) and PCS (1900 GHz) spectrum. Leap Wireless and MetroPCS have deployed large regional networks using mainly AWS and PCS spectrum. And when Verizon recently announced that it would sell its Lower 700 MHz spectrum in the secondary market, T-Mobile made clear its preference for – and ultimately

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[187] *See AT&T-Cingular Merger Order* ¶ 109 (function of screen is to identify "any market in which one entity controls more than one-third of this critical input," *i.e.*, spectrum).

[188] *Notice* ¶ 12 (quoting the Council of Economic Advisers).

[189] *Id.* ¶ 13.

[190] *Fifteenth Wireless Competition Report* ¶ 289.

[191] *Notice* ¶ 35.

obtained – more high band AWS spectrum.[192] Moreover, many providers are using high-frequency spectrum to deploy LTE services. Sprint is currently offering LTE service on its 1900 MHz spectrum.[193] Clearwire has likewise deployed WiMAX and now LTE in markets across the nation using only high band spectrum. And T-Mobile plans to use AWS spectrum acquired from AT&T and Verizon for its 4G service. As T-Mobile has explained, higher-band spectrum is "as effective, or preferred to, lower band spectrum in providing competitive services, particularly for enhancing capacity in highly populated areas."[194] Further, as a result of its merger with MetroPCS, T-Mobile will be acquiring substantial AWS spectrum in "adjacent bands in common local areas" that "will enable a broader and deeper roll-out of 4G LTE services than either [T-Mobile or MetroPCS] could readily achieve on [their] own, including at least 20 x 20 MHz LTE in many urban areas."[195]

As this evidence demonstrates, providers consider many characteristics in addition to propagation when they are purchasing spectrum. Most prominently, they consider whether spectrum is compatible with the spectrum (and thus devices) already deployed in their networks, the size of the available spectrum blocks, the availability of paired spectrum, and the relative costs of spectrum. The most efficient and optimal spectrum for a particular carrier thus reflects a number of trade-offs. That is why, for example, T-Mobile preferred more AWS spectrum over low-band 700 MHz spectrum. It would be patently arbitrary for the Commission to single out

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[192] *See* T-Mobile USA, Inc. Ex Parte, *Applications of Cellco Partnership d/b/a/ Verizon Wireless and SpectrumCo LLC and Cox TMI, LLC For Consent to Assign AWS-1 Licenses et. al.*, WT Docket 12-4, at 2-4 (July 27, 2012).

[193] Sprint Nextel Corp., Press Release, Sprint, Sprint Accelerates Deployment of Network Vision and Announces National Rollout of 4G LTE (Oct. 7, 2011), http://newsroom.sprint.com/article_display.cfm?article_id=2064.

[194] Letter from T-Mobile USA to Secretary Dortch, Ex Parte, *The State of Mobile Wireless Competition*, WT Docket 10-133, at 2 (Dec. 2, 2010).

[195] T-Mobile-MetroPCS Public Interest Showing at iii.

providers that have built networks using lower band spectrum and prevent them, and only them, from acquiring additional compatible spectrum, while providers who have built out their networks using high-band spectrum face no comparable limits. Indeed, such a policy would reward carriers that sat out prior auctions and secondary market opportunities for low band spectrum by limiting the market (and hence lowering the price) for that spectrum going forward. There is no reason why the Commission should engage in that kind of market manipulation. To the contrary, proposals that focus on propagation characteristics alone fail to account for the much greater value purchasers place on securing capacity and the particular spectrum characteristics that permit a specific spectrum block to mesh with existing spectrum holdings or those the purchaser can acquire contemporaneously. The Commission has recognized that it is more efficient to obtain contiguous bands of spectrum.[196] A policy that limits spectrum holdings in particular bands may prevent a provider from obtaining spectrum contiguous to spectrum it already holds, thwarting the potential to achieve such efficiencies.

Third, to the extent the deployment costs of high band spectrum exceed those of low band spectrum in certain areas, the marketplace already accounts for those differences, just as it accounts for the many other factors that may affect the value of any particular block of spectrum to potential purchasers. In any areas in which it costs more to deploy higher-band spectrum (and that spectrum has no offsetting advantages), the higher-band spectrum will fetch lower prices.[197]

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[196] *Fourteenth Wireless Competition Report* ¶ 272.

[197] *See* Seth L. Cooper, *Stifling the Spectrum Market: The Negative Implications of the AT&T-Qualcomm Order*, Perspectives from FSF Scholars, The Free State Foundation, Vol. 7, No. 4, at 3-4 (Jan. 31, 2012) ("FSF Scholars Analysis") ("any cost savings to carriers arising from the unique characteristics of low-band spectrum would be factored in to the market price for the spectrum licenses. . . . The sorting out of near-term versus long-term deployment efficiencies should be left to the price system. For spectrum licenses exchanged through auctions this means winning bid amounts. And for secondary market transactions, this means bargained for sale amounts.").

Thus, the adjustment advocated by proponents of spectrum weighting makes no economic sense: a carrier that holds 700 MHz spectrum, for example, has *already* paid a market premium for that spectrum (which reflects and offsets any coverage-related infrastructure cost savings) and would thus effectively pay again in the Commission's screening process, because the premium it has already paid would effectively raise the cost (or eliminate the possibility) of future spectrum acquisitions.[198]

Fourth, any Commission attempt to weight spectrum in the screen based on its marketplace "value" would be inherently arbitrary, because the Commission does not have the expertise to accurately determine exactly what any given holding of spectrum would fetch in today's marketplace. Myriad factors would significantly affect the relative value of different spectrum bands in the current secondary market,[199] and any Commission attempt to account for all factors that may impact spectrum values would be unworkable given the constantly evolving considerations that that may impact the relative value of any given spectrum block to any given provider at any given place and time.[200] Indeed, under such a regime, a carrier that acquired no additional spectrum could find that itself above the "screen" because of a supposed increase in the "market value" of its existing spectrum holdings.

Moreover, any defensible measure of the value of spectrum would have to account for the fact that in more densely populated areas – the areas where spectrum needs are typically greatest and hence the areas in which a weighting approach would work the most mischief – providers are no longer focused on simply providing coverage but are instead seeking rapidly to expand

[198] Katz-Israel Decl. ¶¶ 91-92.

[199] *Id.* ¶ 93.

[200] *Motor Vehicle Mfrs. Ass'n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29 (1983) ("an agency decision is arbitrary and capricious" if it "entirely failed to consider an important aspect of the problem").

capacity to meet the exploding demand for mobile data services. In these areas, where increasing capacity is paramount, all providers are building smaller and smaller cell sizes to increase capacity. It makes no difference if spectrum can propagate across a large geographic area if users in one square block use up all of its capacity.

In fact, higher band spectrum may actually be better suited for these urban deployments. Major wireless providers have completed the initial deployments of their network and are now focused on the "densification" of their networks – *i.e.*, increasing the density of cell sites – in order to expand capacity. The superior propagation characteristics of low-band spectrum become a disadvantage once a provider turns to densification, because signals from the base station in a low-band deployment are much more likely to create "noise" and interference with other base stations.[201] Accordingly, low-band spectrum requires more costly techniques to manage that interference, while it is much easier to achieve a "clean" RF environment in a dense high-band spectrum deployment. High-band spectrum has other advantage too: it is often available in wide, contiguous blocks (relative, for example, to the narrow blocks available at 700 MHz), a particularly important characteristic for the latest generation LTE technologies, which can provide significantly higher spectral efficiency on larger bandwidth deployments.[202] In these

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[201] *See* The Clearwire 4G Disruptor Presentation at 8 ("Low band spectrum's propagation advantages are at the cost of interference"); *see also* Reed-Tripathi AT&T-Qualcomm Declaration at 2 ("Ironically, it is the very coverage advantages of lower-frequency spectrum that generates the capacity disadvantages that are likely to affect the real-world network design in ways diminish or eliminate propagation-related cost advantages."); *id.* at 31 ("[T]he lower penetration for higher frequencies then becomes an advantage by reducing potential interference to macro-cellular systems.").

[202] *See, e.g.*, Paul Kirby, *Sprint Nextel CTO Offers Vigorous Defense of WiMAX*, TR Daily, Apr. 22, 2008 (former Chief Technology Officer of Nextel and then Sprint Nextel explaining that "[t]he 2.5 gigahertz band spectrum Sprint Nextel's WiMAX network will use compares favorably to 700 megahertz band spectrum" and "[w]hile the lower band enables coverage to be deployed more cheaply initially, the upper band allows greater overall capacity to handle more subscribers"); *Fourteenth Wireless Competition Report* ¶ 272 ("higher-frequency spectrum may

areas, a screen that artificially provided more weight/higher "market value" to low frequency spectrum would clearly be arbitrary, because it is the higher frequency spectrum that is often most needed.

As Professor Katz and Dr. Israel demonstrate, these issues are starkly illustrated by the recent 700 MHz auction. The various 700 MHz blocks of spectrum were assigned vastly different values – ranging from less than 50 cents per MHz POP to well over $2.50 per MHz POP – even though they are all low frequency spectrum.[203] The D block obtained the lowest auction prices, in part due to wholesale conditions. On the other extreme was the paired lower B block spectrum which was not subject to significant interference or conditions. In the middle were various prices for E block (not paired), upper C block (subject to restrictive open access conditions), and A block (subject to interference from adjacent channels). These marketplace facts illustrate that whether the spectrum is above or below 1 GHz is only one of many components to its valuation, and that no categorical valuation or operational characteristics exist that would justify spectrum policy changes focused on distinguishing lower-band from higher-band spectrum.

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be particularly effective for providing significant capacity, or increasing capacity, within a smaller geographic area," and "higher-frequency spectrum can be ideally suited for providing high capacity where it is needed, such as in high-traffic urban areas."); Reed-Tripathi AT&T-Qualcomm Declaration at 10 ("advanced antenna techniques, such as Multiple Input Multiple Output (MIMO) (that provides throughput gains due to spatial multiplexing) and beamforming (that enhances cell-edge throughput due to focusing of signal energy) may perform better at higher frequencies"); *see also* FSF Scholars Analysis, at 4 ("Capacity constraints are also important" and "high band spectrum has arguably better prospects for offering high-capacity service.").

[203] Katz-Israel Decl. ¶ 89 Figure 2.

2. Band-Specific Screens Focused on Lower-Frequency Spectrum Would Be Especially Unjustified.

The *Notice* also requests comment on proposals for "separate consideration of spectrum in different frequency bands, *e.g.*, below or above 1 GHz,"[204] including proposals for "bright-line limits for spectrum holdings below 1 GHz" or "a trigger under which an entity that would hold, post-transaction, more than one-third of the relevant spectrum below 1 GHz in a geographic market would be subject to a more detailed competitive review in that market."[205] Although these proposals should be rejected for all of the reasons just discussed, the imposition of a cap or screen focused on sub-1 GHz spectrum presents these deficiencies and costs to competition in a particularly acute form and would be especially unjustified.

Most importantly, proponents of these caps and screens have pointed to no competitive failing that these measures would address. The spectrum screen is designed merely to take a first cut at identifying areas where a proposed spectrum transfer *might* give a provider the ability to foreclose competition. The Commission's suitability/availability analysis has already determined that all bands included in the screen can be used to provide competitive services. Accordingly, there is no legitimate basis for any additional band-specific analysis, because even where a transaction will result in the accumulation of all spectrum in a particular band in a particular area, that aggregation is not competitively significant if it represents only a small percentage of the overall spectrum available.

Proponents of a band-specific analysis have argued that it is important to (1) ensure that carriers that provided service using a particular band would not be foreclosed from obtaining

[204] *Notice* ¶ 35.

[205] *Id.* ¶ 36.

spectrum in that band and (2) to increase the potential alternative roaming providers in a band. Neither argument is correct.

Providers today can (and almost all do) offer service using a variety of alternative bands. Qualcomm's current chipsets, for example, support the use of three bands below 1 GHz and four bands above 1 GHz, for a total of seven bands. Therefore, even if a transaction results in the accumulation of all of the spectrum in a particular band in a particular area, there is no technological impediment to providers using the spectrum available in the other bands. AT&T, for example, today uses various combinations of cellular, PCS, 700 MHz and AWS spectrum to provide service to its customers. AT&T does not have spectrum in all of these bands in every market, and in the future AT&T will no doubt offer service in more bands (including WCS, which until now has not been suitable or available for broadband). Particularly with opportunities to use new carrier aggregation technologies and the wide availability of multi-band handsets and network equipment,[206] there is no plausible scenario in which a provider could pursue a competition foreclosure strategy by focusing on aggregating all of the spectrum within a single band.

So, too, with roaming. There are numerous providers of 3G and 4G services within multiple bands. For example, 4G services are being deployed using three bands in the 700 MHz range, and various spectrum in the PCS, AWS, and soon, other bands.[207] The availability of chipsets that can support numerous bands means that providers can choose to offer devices

[206] Report of Mark A. Israel, Michael L. Katz, and Allan L. Shampine (*attached to* Reply Comments of AT&T Services Inc.), *Promoting Interoperability in the 700 MHz Commercial Spectrum*, WT Docket No. 12-69, ¶¶ 45-46 (July 16, 2012) ("Israel-Katz-Shampine Report").

[207] Reply Comments of AT&T Services Inc., *Promoting Interoperability in the 700 MHz Commercial Spectrum*, WT Docket No. 12-69, at 16 (July 16, 2012).

capable of roaming on many alternative bands.[208] Spectrum-only transactions typically *increase* roaming options (because the spectrum typically is being transferred from a seller who is not using the spectrum to offer service to a provider who will), but even in a merger proceeding in which the transfer would reduce the number of roaming partners by one, such a spectrum transfer would not remotely threaten to foreclose competition itself, as long as other spectrum remains available for the other providers that choose to offer service.[209] And, as discussed above, there is no doubt that the Commission's current policies are entirely adequate to ensure that other providers will not be foreclosed from providing service or from obtaining roaming on commercially reasonable terms.

Equally important, a low-frequency bandwidth screen would result in significant costs to competition and consumer welfare. The additional screens would simply impose unnecessary costs on transactions that involve low-frequency spectrum, consuming the Commission's resources and providing rent-seeking competitors with opportunities to delay and increase the costs of completing efficient transactions. Such costs would arise in circumstances where they are entirely unnecessary and of no benefit to consumers, because no flaw has been demonstrated in the Commission's current policies that require special scrutiny of transactions within particular spectrum bands. And to the extent that transactions are impeded or abandoned due to these increased regulatory burdens, consumer welfare clearly declines.[210] Such regulatory

[208] Israel-Katz-Shampine Report ¶¶ 45-46.

[209] This assumes that the Commission rejects proposals from RTG and others calling for regulation of roaming rates. Rural Telecommunications Group Ex Parte, *Reexamination of Roaming Obligations of CMRS Providers*, WT Docket No. 05-265 (Nov. 9, 2012). The rate regulation RTG demands would not only displace market forces, but would make it uneconomical for carriers to expand coverage through facilities deployment so long as even a single roaming alternative was available.

[210] Katz-Israel Decl. ¶¶ 8, 9, 45, 49, 88.

roadblocks would prevent providers from securing spectrum in the bands they already have begun to deploy, the bands that would most increase the efficiency of their services, whether through achieving efficiencies related to adjacent spectrum blocks or paired blocks or simply securing additional capacity. Consumer welfare necessarily would suffer, with either degraded, slower, and less certain wireless services, or at best, higher cost for any given level of increased capacity or improvement in service quality.[211]

B. Market Participants, Not The Commission, Should Determine Where, How And When To Deploy Spectrum Resources And Other Means Of Capacity Expansion.

The *Notice* asks whether the Commission, in its case-by-case spectrum analysis, should account for "special circumstances, such as how efficiently the licensee is using its existing spectrum resources and whether it has alternatives to meet its competitive needs aside from acquiring more spectrum."[212] There is no economic or competition-related justification for adopting any such change, which would inflict far reaching and severe public interest harms.

Preliminarily, secondary market and auction transactions are presumptively pro-competitive.[213] The sole focus of the Commission's spectrum aggregation policy is whether a

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[211] The Commission cites decisions from the U.K. and Germany purporting to limit carriers' ability to acquire low-band spectrum, but those decisions are inapposite. *Notice* ¶ 35 n.112. The Commission's policies have been successful in creating a world-leading, dynamic, innovative, and extremely competitive wireless industry, and there is no justification for borrowing the contrary policies of these countries, which have produced less competitive and dynamic wireless industries. In all events, to the extent that these orders address the specific question whether low-band spectrum is more "desirable," the U.K. decision expressly found that a "credible" additional national service provider could compete successfully using a portfolio comprised only of higher-frequency, 1800 MHz, 2.1 GHz, and 2.6 GHz spectrum. Ofcom, Assessment of Future Mobile Competition and Award of 800 MHz and 2.6 GHz, Statement, at §§ 4.142, 4.152 (July 24, 2012), *available at* http://stakeholders.ofcom.org.uk/binaries/consultations/award-800mhz/statement/statement.pdf.

[212] *Notice* ¶ 39.

[213] *See supra* I.A.; Katz-Israel Decl. ¶ 14.

carrier is gaining sufficient spectrum that it would have the incentive and ability to warehouse that spectrum in order to foreclose competition and gain market power. Whether or not that carrier is, in the Commission's view, using its spectrum "efficiently" enough is simply irrelevant to the relevant inquiry.

Indeed, the proposed "efficiency" inquiry is not just besides the point, but inimical to the Commission's statutory obligation to promote and protect competition. It would require the Commission to substitute its judgment about the best way to plan and deploy wireless networks, which inputs to acquire, when and in what amounts, for the judgment of those entities that actually own and operate those networks. That is not competition; it is central planning.

As such, Commission review of "efficiency," like any form of central planning, would be unworkable and fraught with risk of erroneous determinations that harm consumer welfare.[214] The Commission is not in position to determine whether a certain level of spectrum usage at a certain time is "efficient" as opposed to other options. It cannot determine whether a carrier should deploy a particular service now or undertake additional planning and analysis. It cannot possibly evaluate whether it would be more "efficient" for the company to forego increased spectrum in favor of other costly network upgrades. The only thing that an "efficiency review" would guarantee is an extended regulatory process that provides competitors the opportunity to secure significant regulatory windfalls and sensitive business data. Service providers required to justify their business planning would be expected to reveal their operational plans to the Commission and, to a certain degree, to their competitors so that they could meaningfully challenge the licensee's use of spectrum under the proposed standard. At a minimum,

[214] *Id.* ¶ 102.

competitors would have a strong incentive to challenge the "efficiency" of other providers to delay acquisition of spectrum that would be used to provide marketplace competition.

Allocating scarce inputs to competitors on the basis of a centralized regulator's judgment as to which market participant would most efficiently use it is inappropriate in any circumstance, but it is particularly inappropriate here. As explained by Professor Katz and Dr. Israel, market forces already pressure providers to adopt the most efficient methods for increasing capacity,[215] and the types of central planning suggested in the *Notice* – in which the Commission would substitute its own business and engineering judgments for those of industry participants – could only lead to sub-optimal results, both in terms of efficiency and in facilitating continued robust competition.[216] Carriers must keep costs low and utilization high to earn competitive returns. Given its costs and importance, carriers that fail to use spectrum efficiently will be punished in the marketplace and forced either to adapt or wither.

At the same time, both basic economic theory and marketplace evidence demonstrate that there is no problem of carriers using spectrum "inefficiently" in a way that poses a risk to competition. As discussed in Section I, *supra*, no pattern of spectrum "warehousing" exists that threatens competition or requires the Commission to second-guess service providers' basic business and engineering planning. To the contrary, where, as here, spectrum costs billions of dollars, the Commission can impose stringent build-out requirements, and multiple existing competitors have already secured the necessary inputs to provide service, warehousing is a strategy for economic failure.[217] Proponents of having the Commission second-guess whether carriers are using their spectrum efficiently rely on the theory that the leading service providers

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[215] *See id*. ¶ 102.

[216] *Id*. ¶¶ 102-103.

[217] *See id*. ¶¶ 28-32.

are simply leaving money on the table: forgoing what they assess to be the efficient mix of spectrum acquisition and infrastructure investment and instead acquiring valuable spectrum only to let it sit idle. But the cost of capital and opportunity cost associated with unnecessary "idle" spectrum would be immense. The proponents of policy changes have provided the Commission with no reason to believe that market forces are not encouraging service providers to use their capital, and their engineering and business judgments, effectively or to believe that the Commission has any theoretical or practical basis to second-guess those judgments.

Nor could they. As Chairman Genachowski recently noted, it is "just not true" that wireless providers are "just sitting on top of, or 'hoarding,' unused spectrum that could readily solve [the spectrum crunch]."[218] Evidence submitted in the course of recent spectrum acquisition proceedings addressed various service providers' customer connections per MHz, a basic measure of spectrum use and efficiency. Those submissions show that AT&T is far more efficient and uses its spectrum much more intensively than any of the smaller carriers, including Sprint, T-Mobile, Clearwire, C Spire, Metro PCS, and Leap/Cricket.[219] Verizon Wireless, too, uses its spectrum more intensively than the smaller carriers and was projected, following its acquisition of AWS spectrum, to lead all carriers other than AT&T and MetroPCS by decisive margins in customer connections per MHz.[220] This evidence is incompatible with any claim of "warehousing" and confirms that currently unused spectrum instead reflects beneficial longer-term planning and service development that is inherent in wireless service provision.

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[218] FCC Chairman Julius Genachowski, The Clock is Ticking: Remarks on Broadband, Washington, D.C., at 8 (March 16, 2011).

[219] Joint Opposition to Petitions to Deny and Comments, *Application of Cellco Partnership d/b/a Verizon Wireless and SpectrumCo, LLC for Consent to Assign Licenses*, WT Docket No. 12-4, at 25 (March 2, 2012) ("Verizon Wireless and SpectrumCo Joint Opposition").

[220] *Id*.

Finally, and in all events, even if there were some factual or theoretical basis to believe that the leading service providers were forgoing short-term and medium-term profits by "warehousing" spectrum – and that the Commission could reliably determine whether a carrier was using spectrum with sufficient "efficiency" – the Commission already has much more effective procedures in place to prevent warehousing. Most spectrum is already subject to build-out requirements. Providers that fail to comply with such requirements are required to give up the spectrum so that it can be allocated to another provider. Buildout requirements thus already provide a strong incentive for providers not to warehouse spectrum and a mechanism for addressing circumstances where providers are not investing to use their spectrum.

C. The Commission Should Not Create Any "National" Spectrum Screen.

The *Notice* asks whether the Commission "should adopt a two-tiered approach under which there is a spectrum threshold at the local level and a separate threshold that applies on a nationwide basis."[221] Proposals for a national spectrum screen should be rejected because such a screen would not address any risk to competition posed by a licensee's accumulation of spectrum. Spectrum can only be used in its licensed areas – *e.g.*, spectrum in Chicago cannot be used in New York. Therefore, the only relevant question for assessing whether competition is foreclosed in a particular area is how much spectrum is available in *that particular area.*

Indeed, as long as the local spectrum screen is set at the appropriate level, a separate national screen is superfluous. As Professor Katz and Dr. Israel explain, the only way a nationwide screen would flag a transaction not already flagged by at least some local screen

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[221] *Notice* ¶ 32.

would be if the national screen were set at a lower level than the local screen.[222] But it would make no logical sense to establish a lower national screen: "if there is no threat of foreclosure in any local market, then there can be no threat of foreclosure in the nationwide collection of local markets."[223]

A separate national screen would also create perverse incentives, because it would deter beneficial expansion into new markets. For example, a provider might seek to acquire spectrum in a new local market, and such an acquisition might push that provider over the national screen even though it leaves the provider far below the local spectrum screen. Such a spectrum transfer obviously could not harm competition in that local market, nor is there any sound theory under which such an acquisition could harm competition in some "national" market. Instead of protecting competition, a national screen "would potentially limit the realization of cross-market asset complementarities, thus driving up prices and harming consumers."[224]

A national screen would also undermine the clarity and predictability of the local screens. As noted above, a national screen would never have any independent effect unless it were set at a level lower than the local screen. In any such circumstance, however, the Commission would presumably require further scrutiny of the proposed transaction in every local market to determine the effect on "national competition," even though the transfer did not exceed the local screen. The Commission has no coherent or fact-based framework for assessing effects on national competition, however, and therefore such an approach would seriously undermine the

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[222] Katz-Israel Decl. ¶ 76 ("[b]ecause no mobile wireless service provider can have spectrum holdings in more than 100 percent of the local markets, a nationwide screen would have no impact unless its threshold were set lower than the local screen's threshold").

[223] *Id*. ¶ 77.

[224] *Id*. ¶ 78. Indeed, the principal effect of a national screen would likely be to put pressure on larger providers to exit rural areas, in order to create additional "headroom" to ensure that they have enough spectrum to meet their service requirements in urban areas.

transparency and regulatory certainty of the spectrum screens.[225] In addition, any national screen would have to be based on some kind of weighted average of local spectrum (the most popular appears to be some sort of population weighting (*i.e.*, MHz*POPs)), but the broad variety of possible weighting schemes would create further, irresolvable controversy and thus would further undermine the reliability of the framework.

In short, a national screen would serve no purpose. As explained above, it would be extremely difficult for any provider to pursue a foreclosure strategy even in a local market; an attempt to foreclose competition on a *national* basis would be orders of magnitude more foolhardy, expensive, and unlikely to succeed. Because the proposed national screen is built on a false premise, no approach to measuring national average spectrum holdings can eliminate its serious adverse effects on competition and investment and the Commission's wireless broadband policies.

IV. ANY CHANGES TO THE COMMISSION'S SAFE HARBOR AND CASE-BY-CASE ANALYSIS, INCLUDING THE COMMISSION'S PROPOSED ATTRIBUTION RULE, SHOULD APPLY PROSPECTIVELY TO FUTURE SPECTRUM ACQUISITIONS AND NOT RETROACTIVELY TO EXISTING SPECTRUM HOLDINGS, AND SHOULD APPLY FULLY AND NEUTRALLY TO ALL PROVIDERS.

The *Notice* seeks comment on proposed rules that would attribute to a licensee's total spectrum holdings all controlling interests, certain non-controlling interests, including equity interests of 10 percent or more, as well as various other holdings (*e.g.*, spectrum of a licensee will be attributable to entities with which the officers and directors are associated). AT&T supports codification of the Commission's attribution policies in clear rules, although it believes that the 10 percent threshold for attributing non-controlling minority interests is likely too low. In addition, the Commission should not apply the new attribution rule (or any other new rule)

[225] *Id.* ¶ 79.

retroactively to existing holdings, but it should apply its new rules even-handedly in any *future* spectrum transfer proceeding.

First, AT&T supports the Commission's proposal to codify its spectrum aggregation-related attribution policies in clear rules rather than applying them on an *ad hoc* basis in individual transaction proceedings. Clearly defined attribution rules can only increase transparency and certainty as to how the Commission will evaluate spectrum transactions.

The Commission's specific proposal to "attribute[]" "[n]on-controlling interests of 10 percent or more in mobile spectrum holdings" is unsupported and establishes a threshold that is likely too low.[226] Courts have previously repeatedly held that the Commission must identify a "close relationship" between the ownership interest it is making "attributable" and the purpose that the attribution rule seeks to serve,[227] and in the context of spectrum aggregation rules, the Commission would have to show that there is a reasonable basis for believing a certain level of minority ownership will allow the minority owner to influence the spectrum holder to warehouse its spectrum in order to foreclose competition.[228] It is implausible that a 10 percent ownership interest would presumptively give an investor even negative control over a carrier's spectrum purchase decisions, much less presumptively provide affirmative control sufficient to drive a combined hoarding and foreclosure strategy. Certainly, the *Notice* cites no evidence to support its proposed attribution standard. The Commission has previously found that a 20 percent

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[226] *Notice*, App. A, Proposed 47 C.F.R. § 20.21(c)(2).

[227] *See Cincinnati Bell Tel. Co. v. FCC*, 69 F.3d 752, 759 (D.C. Cir. 1995); *Oxy USA, Inc. v. FERC*, 64 F.3d 679, 696 (D.C. Cir. 1995).

[228] *See id.* at 759-60 (striking down the Commission's 20 percent attribution rules because the agency could not point to hard evidence that the minority owner could "control[] the behavior of the Cellular licensee" at that ownership level).

interest was an appropriate threshold and the *Notice* does not provide an adequate explanation as to why a lower threshold is now appropriate.[229]

Second, the Commission does not propose retroactively to apply any changes it might make in this rulemaking to its case-by-case approach, and AT&T agrees that such "grandfathering" is appropriate for existing holdings. It would be contrary to the public interest to apply any new policies or rules retroactively to existing spectrum holdings. As shown *supra*, competition has flourished under existing attribution policies and spectrum screens, even where providers have exceeded the safe harbor threshold.[230] Because current policies and spectrum holdings have not resulted in any foreclosure or other harms to competition, requiring immediate divestitures would serve no useful purpose and would "disrupt this burgeoning industry and delay service to the public."[231] Such forced divestitures would also set a dangerous precedent that would undermine investment incentives.[232] The Commission has previously recognized that it would be contrary to the public interest retroactively to apply new rules concerning attribution, and, for the reasons stated, there is no reason for departing from that practice here.[233]

Third, whatever attribution or other spectrum aggregation rules the Commission adopts, when a provider seeks to acquire additional spectrum in *future* transactions, the Commission must fully and neutrally apply the new attribution and spectrum screen rules. It is critical that the Commission ensure a level competitive playing field by applying all of its new rules equally to all parties. Thus, if a provider exceeds the safe harbor level in any market, and is unable to show

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[229] *See Notice* ¶ 41.

[230] *See supra* Section II.B.

[231] *PCS Remand Order* ¶ 132.

[232] Katz-Israel Decl. ¶ 120.

[233] *PCS Remand Order* ¶ 132. ("[R]etroactive application of any cross-ownership or spectrum cap rule changes would be contrary to the public interest.").

that its holdings above that threshold pose no substantial foreclosure threat, the applicant should receive no special treatment with respect to the requirement that it divest enough spectrum to bring itself into compliance in that market. Such even-handed prospective application of the attribution rules and spectrum screen is necessary to avoid unlawful discrimination against certain providers.[234] Any other approach would effectively establish different spectrum screens and attribution requirements for different carriers, based solely (and irrationally) on what rules may have applied to that carrier prior to the adoption of the new rules. It is the essence of arbitrary agency action to "appl[y] different standards to similarly situated entities."[235]

In particular, it is well past time for the Commission to end its arbitrary and preferential treatment of Sprint/Clearwire. In the *Sprint-Clearwire Order,* the Commission recognized, in light of Sprint's substantial ownership interest in Clearwire, that Clearwire's spectrum holdings must be attributable to Sprint,[236] and Sprint today concedes that Clearwire's spectrum should be attributed to Sprint.[237] As explained above, however, despite the fact that Sprint is by far the

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[234] Katz-Israel Decl. ¶¶ 119-121.

[235] *Burlington N. & Santa Fe Ry. Co. v. Surface Transp. Bd.*, 403 F.3d 771, 777 (D.C. Cir. 2005); *see also* *Indep. Petroleum Ass'n v. Babbitt*, 92 F.3d 1248, 1260 (D.C. Cir. 1996) (agencies cannot "treat[ ] type A cases differently from similarly situated type B cases").

[236] *Sprint-Clearwire Order* ¶¶ 77, 82.

[237] Sprint-Softbank Public Interest Statement at 9, 35. Sprint currently maintains a 48 percent equity share in Clearwire and has recently sought to expand its equity ownership to above 50 percent. Sprint has agreed to purchase additional interests in Clearwire, giving it 50.8% percent ownership, and therefore effective control, of Clearwire. *See* SEC Schedule 13D/A Filing (Oct. 13, 2012), available at http://www.sec.gov/Archives/edgar/data/101830/000119312512426578/d424777dsc13da.htm (last visited November 5, 2012). Sprint's ownership interest in Clearwire already permits it to appoint a majority of Clearwire's Board of Directors, *Sprint-Clearwire Order*, which gives Sprint the ability to influence, if not control, day-to-day corporate decision-making. *See, e.g.*, C. Elson, *Executive Overcompensation – A Broad-Based Solution*, 34 B.C. L. Rev. 937, 996 (1993); L. Ribstein, *Business Associations* 115-17 (1990); R. Thompson, *The Shrinking Definition of a Security: Why Purchasing All of a Company's Stock Is Not a Federal Securities Transaction*, 57 N.Y.U. L. Rev. 225, 257–58 (1982).

largest holder of mobile wireless spectrum, the Commission's current case-by-case screen shields any new Sprint spectrum acquisition from scrutiny because most of Clearwire's spectrum is not considered "available" for mobile services (even though it is not only available but in use). Under any policy focused on protecting competition and consumers – rather than trying to pick winners and losers – it cannot be seriously disputed that *all* of Clearwire's licensed mobile spectrum should be attributed to Sprint and included in the screen.

The Commission's failure properly to attribute all of the Clearwire spectrum to Sprint has allowed the company to acquire spectrum holdings far in excess of any other carrier, averaging almost 200 MHz in the largest markets.[238] Going forward, the Commission should apply its attribution rules on a competitively neutral and evenhanded basis and attribute all of Clearwire's broadband suitable spectrum to Sprint.

No other carrier with Sprint's vast spectrum holdings likely would be permitted to acquire additional spectrum under any of the caps, screens, or attribution proposals under consideration here. Sprint likely believes that there is no serious impediment to it doing so, however, because under the current screen, most of Sprint's spectrum holdings are improperly excluded from the analysis altogether. This only serves to underscore the Commission's obligation to adopt rules that are clear, that include all mobile wireless spectrum, and that are applied in a way that does not attempt to pick winners and losers.

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[238] *See supra* p. 3.

CONCLUSION

For the foregoing reasons, the Commission should amend its rules as described above.

Respectfully submitted,

/s/ Michael P. Goggin

Michael P. Goggin
Gary L. Phillips
Peggy Garber
AT&T Inc.
1120 20th Street, N.W.
Washington, D.C. 20036
(202) 457-2055

David L. Lawson
James P. Young
C. Frederick Beckner III
Sidley Austin LLP
1501 K Street, N.W.
Washington, D.C. 20005
(202) 736-8000

Attorneys for AT&T Inc.

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ATTACHMENT A

ECONOMIC ANALYSIS OF PUBLIC POLICY REGARDING MOBILE SPECTRUM HOLDINGS

Mark A. Israel and Michael L. Katz

NOVEMBER 28, 2012

CONTENTS

I. INTRODUCTION AND OVERVIEW

1. The Federal Communications Commission (Commission) seeks input to its review of its policies regarding mobile spectrum holdings.[1] The Commission's overarching goals for these policies are to "provide the certainty and predictability needed to make informed investment decisions, including participation in upcoming incentive auctions and secondary market transactions, while also promoting the competition needed to sustain a healthy wireless marketplace."[2] The Commission states that it is undertaking this review in order to assess whether its policies need to be updated in the light of changes in the wireless industry over the last decade, including: an increase in the spectrum bands available for mobile wireless services, the introduction of new services by wireless carriers, the increased sophistication of wireless devices, and the increase in consumer adoption of wireless applications requiring more bandwidth.[3]

2. We have been asked by counsel for AT&T to conduct an economic analysis of the effects on competition and consumer welfare of the Commission's policies governing mobile spectrum holdings.[4] In particular, we have been asked to address the question of what spectrum-holding policy regime would best protect competition and promote consumer welfare, as well as to address several specific questions posed by the Commission in the *NPRM*.

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1 *In the Matter of Policies Regarding Mobile Spectrum Holdings*, WT Docket No. 12-269, Notice of Proposed Rulemaking, rel. September 28, 2012 (hereinafter, *NPRM*).

2 Federal Communications Commission, "FCC Initiates Review of Mobile Spectrum Holdings Policies to Enable a Healthy and Competitive Wireless Marketplace with Clear and Predictable Rules of the Road," September 28, 2012.

3 *NPRM*, ¶ 2.

4 Unless otherwise stated, we define the term consumer to include enterprise customers of mobile wireless service providers in addition to household customers.

3. Before turning to the question of what, if any, policy changes are warranted given current industry conditions, it is useful to review the genesis and core features of the Commission's current spectrum-holding policies. Initially, the Commission imposed a rigid spectrum aggregation "cap" in its analysis of license transfers, assignments, and leases.[5] It did so in an environment in which it had licensed only two wireless carriers in each market. In 2001, in the wake of emerging wireless competition, the Commission chose to abandon the rigid spectrum aggregation cap, replacing it with a "spectrum screen" that, when exceeded, triggered further competitive analysis under a flexible, case-by-case approach.[6, 7]

4. In broad terms, the spectrum screen is set at a level approximately equal to one-third of all spectrum available and suitable for mobile wireless services in a given local market (periodically updated), with any transaction that would result in spectrum license holdings less than that amount deemed to pose no significant threat to competition.[8] The screen was created to

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5 *Implementation of Sections 3(n) and 332 of the Communications Act – Regulatory Treatment of Mobile Services*, GN Docket No. 93-252, Third Report and Order, 9 FCC Rcd 7988 (1994), (hereinafter, *CMRS Third Report and Order*), ¶¶ 238 and 263.

6 *2000 Biennial Regulatory Review – Spectrum Aggregation Limits for Commercial Mobile Radio Services*, WT Docket No. 01-14, Report and Order, 16 FCC Rcd 22668 (2001) (hereinafter, *Second Biennial Review Order.*) The Commission sunset the spectrum cap effective January 2003 to allow for a transition period between review under the cap and review under a case-by-case analysis. (*Second Biennial Review Order,* ¶ 1.) The Commission articulated and first applied its case-by-case approach, utilizing screens to determine which local markets should be examined further, in its analysis of AT&T's merger with Cingular. (*Applications of AT&T Wireless Services, Inc. and Cingular Wireless Corporation*, Memorandum Opinion and Order,19 FCC Rcd 215122 (2004) (hereinafter, *AT&T-Cingular Order*), ¶¶ 4 and 106-112.)

7 The Commission also uses a screen based on concentration of subscriber shares in local markets for wireless telecommunications services and changes in concentration. (*AT&T-Cingular Order*, ¶¶ 106-109.) The Commission does not seek comment on this screen. (*NPRM,* note 31.)

8 *Second Biennial Review Order* ¶¶ 56, 67, 74; *AT&T-Cingular Order* ¶ 109; *Applications of Cellco Partnership d/b/a Verizon Wireless and SpectrumCo LLC and Cox TMI, LLC for Consent to Assign AWS-1 Licenses, et al.*, WT Docket No. 12-4, Memorandum Opinion and Order and Declaratory Ruling, FCC 12-95 (rel. Aug. 23, 2012) (hereinafter, *Verizon-SpectrumCo Order*) ¶ 59.

function as a safe-harbor: Only transactions that resulted in a party's exceeding the screen were to be subject to detailed review; those markets for which spectrum holdings were below the screen threshold (and where the non-spectrum, subscriber share/concentration screens were also not exceeded) were "eliminate[d] from further consideration" because it was determined that "there [was] no potential competitive harm."[9]

5. Although the spectrum screen was originally created as a safe harbor, recent Commission statements and actions have created uncertainty about how the screen will be applied going forward. For example, the Commission has suggested that it may challenge transactions for which spectrum aggregation falls below the screen.[10] Moreover, in its recent application of the spectrum screen to the AT&T-Qualcomm transaction, the Commission departed from its long-standing approach of treating all relevant spectrum equally,[11] stating that it looked "more closely" at holdings of spectrum in bands below 1 GHz.[12]

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9 *AT&T-Cingular Order*, ¶ 109. ("Nevertheless, in line with the conservative approach embodied in this initial screen, the function of which was simply to eliminate from further consideration any market in which there is no potential for competitive harm as a result of this transaction, we subjected to further review any market in which one entity controls more than one-third of this critical input.") *See also*, ¶ 110. ("…application of the initial screen eliminated from further review any market *not* identified by the screen. Although the structure of many of these eliminated markets will change as a result of the transaction, the fact that they were not caught by the screen indicated either that the market will be no more concentrated than the average market today, or that the structural change as a result of the merger is *de minimis*, or both, and we therefore find that these structural changes will not alter carrier conduct in such a way as to impair competition and hence market performance.")

10 For example, in its recent order regarding the assignment of licenses from SpectrumCo and Cox TMI to Verizon Wireless, the Commission stated that it "is not, however, limited in its consideration of potential competitive harms in proposed transactions solely to markets identified by its initial screen." (*Verizon-SpectrumCo Order*, ¶ 48.) [Footnote citing supporting Commission orders omitted.]

11 *In the Matter of Applications of Cellco Partnership d/b/a Verizon Wireless and Atlantis Holdings LLC For Consent to Transfer Control of Licenses, Authorizations, and Spectrum Manager and* De Facto *Transfer Leasing Arrangements and Petition for Declaratory Ruling that the Transaction is Consistent with Section 310(b)(4) of the Communications Act*, Memorandum

6. Some parties would like to see the Commission continue to move away from use of a clear safe harbor coupled with detailed, case-by-case analyses of those markets that do not fall within it, possibly going so far as a return to a hard spectrum cap along with an unstructured analysis of even those markets in which the relevant party's holdings of spectrum rights are under the cap.[13] As detailed below, our analysis indicates that competition and consumer welfare would be better served if the Commission moved in the *opposite* direction.

7. Specifically, our analysis reaches the following main conclusions. Competition, consumers, and thus the public interest are best served by a reinvigorated commitment to use of a spectrum screen (set at a level equal to at least one-third of suitable spectrum, counting all suitable frequencies equally) as a true safe harbor. The screen should be coupled with case-by-case review of instances where spectrum holdings exceed the screen in local markets, with that review utilizing clear principles transparently applied. In those situations where case-by-case review is undertaken, remedial action should be taken only when principled analysis demonstrates likely harm to competition in one or more local markets for mobile wireless

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Opinion and Order and Declaratory Ruling, 23 FCC Rcd 17444 (2008) (hereinafter, *Verizon-ALLTEL Order*), ¶ 69. ("Since the Commission first determined to evaluate potential spectrum aggregation of 800 MHz cellular spectrum, 800/900 MHz SMR, and 1.9 GHz broadband PCS spectrum for purposes of competitive review, it has not differentiated among these bands. Nor did we do so last year when we expanded the initial spectrum aggregation screen to include 700 MHz band spectrum. We decline to do so here with respect to the particular 2.5 GHz BRS spectrum or the 1.7/2.1 GHz AWS-1 spectrum that we find suitable for mobile telephony/broadband services.")

[12] *In the Matter of Application of AT&T Inc. and Qualcomm Incorporated For Consent To Assign Licenses and Authorizations*, WT Docket No. 11-18, Order, FCC-11-188 (rel. December 22, 2011) (hereinafter, *AT&T-Qualcomm Order*), ¶ 31.

[13] For example, Rural Telecommunications Group petitioned the Commission to consider imposing a cap at the county level on spectrum holdings below 2.3 GHz. (*See*, *In the Matter of Petition of Rural Telecommunications Group, Inc. to Impose a Spectrum Aggregation Limit on all Commercial Terrestrial Wireless Spectrum Below 2.3 GHz*, RM No. 11498, Order, rel. October 23, 2012.)

services. Moreover, any remedies should be carefully targeted to just the specific competitive harms triggered by the transaction in the market or markets in which those harms occur.

8. These conclusions are supported by the following three broad principles:

- *Competition is a powerful force for ensuring economic efficiency and maximizing welfare.* It is widely accepted among economists that, in the absence of clear evidence to the contrary, the actions of competitive firms generally promote social welfare and efficiency. As the Commission has stated on many occasions, sound regulatory policy should be designed to promote, not restrict or distort, competition because of the benefits that competition can be expected to bring to consumers.[14]

- *Spectrum aggregation policy should focus on preventing true cases of harm to competition in (downstream) markets for mobile wireless services that arise from foreclosure in (upstream) markets for spectrum rights.* The performance of markets for mobile wireless services drives consumer welfare, and spectrum is only one of several inputs into the production of mobile wireless services. Consumer welfare is best protected by policies that focus on protecting the competitive process, of which a core feature is that some output suppliers succeed, grow, and require more inputs, while other suppliers struggle, shrink, and require fewer inputs. Consequently, public policy should allow service providers to obtain additional spectrum rights unless the proposed transactions foreclose rivals from offering mobile wireless services and

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14 *See, e.g.*, *In re Application of Alascom, Inc. AT&T Corporation and Pacific Telecom, Inc. For Transfer of Control of ALASCOM, Inc. from Pacific Telecom, Inc. to AT&T Corporation; and Application of Alascom, Inc. For Review of Authorization to Acquire and Operate a Fiber Optic Cable System between Alaska and Oregon for the Provision of Interstate-Switched and Private Line-Services*, Order and Authorization, 11 FCC Rcd. 732, ¶ 56 (1995). ("The "Commission's statutory responsibility is to protect competition, not competitors.")

harm the competitive process. Public policies that protect certain competitors from the rigors of the marketplace, while limiting the abilities of other firms to succeed, are inherently anti-competitive and harmful to consumers.

- *Spectrum policy will seriously harm consumers if it stifles innovation by restricting the ability of successful competitors to obtain the additional spectrum needed to support expansion.* Innovation in mobile wireless services markets has been and—absent policies that harm investment incentives—will continue to be an engine of improved consumer welfare. Such dynamic considerations provide further justification for restricting regulatory actions limiting spectrum holdings to only those cases in which there is clear evidence of likely market foreclosure. These dynamic considerations also point to a need for well-defined rules of the road both for identifying which transactions require no detailed review of competitive concerns and for determining the competitive effects of those transactions that are subject to additional review.

9. These principles have clear implications for the Commission's inquiry regarding whether it should, in evaluating transactions and establishing auction rules, employ a case-by-case analysis of the impact of changes in spectrum holdings or adopt hard caps, as well as for the Commission's other specific questions:

- *Hard spectrum caps restrain those firms most successful at offering services that consumers find valuable and hinder competition, thus reducing consumer welfare, whereas case-by-case analysis, coupled with safe harbors and clear rules of the road regarding the factors considered in such analysis, protects against credible threats of* *market foreclosure while preserving incentives to invest and grow.* By their very nature, rigid spectrum caps will deter efficient competitors from expanding, thereby reducing the competitive pressures that other market participants face. Moreover, hard caps on spectrum rights holdings artificially increase costs and decrease investment returns, thus stifling welfare-enhancing investment and innovation. In contrast, a case-by-case analysis with safe harbors provides regulatory certainty for many transactions and allows a wireless service provider to obtain spectrum above the safe harbor where such acquisition does not pose a substantial likelihood of harm to competition.

- *The level of the spectrum aggregation screen should not be lowered from its current level of one-third of the suitable, available spectrum.* Indeed, for the following reasons, the fraction used to determine the screen should, if anything, be raised from its current level: (a) the average number of active competitors in mobile wireless markets has increased over time; (b) the amount of available spectrum has more than doubled since the cap was first imposed which implies that the amount available above the screen is necessarily larger;[15] (c) there are many examples of Cellular Marketing Areas (CMAs) in which four, five, and even six competitors are active even though one service provider has more than one-third of the spectrum currently included in the Commission's spectrum screen; and (d) the argument behind a one-

[15] The amount of spectrum used in the Commission's calculation of attributable holdings has more than doubled in 97 percent of U.S. counties and has increased by somewhat less in the remaining counties. There also is spectrum that is not currently attributable under Commission rules, but which could be—or already is being—used for the provision of mobile wireless services. See Section IV.C below.

third screen embeds the false premise that different firms need equal amounts of spectrum to compete effectively.

- *The current Commission approach to market definition—defining a local market for all wireless (voice and data) service—is appropriate.* The *NPRM* asks: (a) whether the relevant product market defined in Commission proceedings should continue to be "a combined 'mobile telephony/broadband services' product market," and (b) whether the Commission should continue to consider the relevant geographic markets to be local (and to use CMAs as the relevant geographic unit of analysis), or whether some consideration of national competition should be adopted. In both cases, a review of the available evidence indicates that the current approach is appropriate; mobile wireless service markets are inherently local and there is no natural division between mobile wireless voice and data.

- *A national spectrum screen offers no public-interest benefits if an appropriate set of local screens is in effect.* Local screens appropriately target conditions in local markets; a national screen that relied on a weighted average of local-market holdings would not add any useful information and (based on the choice of weights to use in the average) could simply introduce another source of error into the decision process. Moreover, to have any effect on top of local screens, a national screen would have to be set *lower* than the local screens. Such a national screen would potentially lead to economically irrational outcomes, such as situations in which entry into new markets (with associated spectrum acquisitions)—presumably a pro-competitive event—pushes a firm over the national screen.

- *All spectrum that is currently—or will soon be—available for the provision of mobile wireless services should be included in the competitive analysis.* For example, the Commission should stop disregarding large portions of Clearwire Corporation's 2.5 GHz broadband spectrum when applying the spectrum screen. And given the continued evolution of the marketplace, the screen should be forward-looking, incorporating spectrum that will soon be usable in the provision of mobile wireless services.
- *All spectrum that is currently—or will soon be—available for the provision of mobile wireless services should be weighted equally (per MHz) in the application of the spectrum screen.* No differential weighting scheme that has been advanced demonstrates a meaningful link between the weights used and competitive market outcomes. One proposal, to give less weight to higher frequency spectrum, ignores the advantages of such spectrum, particularly in congested markets where wireless network operators are adopting increasingly dense cell grids to meet soaring demand. Another proposal, to weight different spectrum bands by their dollar values, demonstrates a profound lack of understanding of market equilibrium and competition. Proposals such as these that lack a sound basis in competitive analysis will inefficiently distort incentives and lead to inefficient spectrum usage decisions.
- *The Commission should not mandate specific levels of spectrum utilization.* Obtaining spectrum and building out associated infrastructure are generally parts of a firm's interconnected, long-run investment plan. As such, not all spectrum may be used immediately, but this does not mean the spectrum is being "warehoused" or

under-utilized, and requiring firms to meet short-term spectrum utilization targets may undermine long-term investment efforts, including efforts to move to more efficient technologies or otherwise to provide improved service to consumers. In short, substituting the Commission's judgment for market forces as a determinant of the appropriate use of spectrum is inconsistent with the goal of promoting undistorted competition. That said, it should also be recognized that, to the extent that the Commission nevertheless imposes build-out requirements on licensees, it is even less likely that a mobile wireless service provider would find it economically rational preemptively to obtain spectrum rights with no intention of utilizing them to offer service.

- *In instances where transactions are deemed likely to harm competition, remedies should be tightly targeted to the specific competitive harms identified.* Unless remedies are tied tightly to specific, transaction-related competitive concerns, Commission reviews risk becoming rent-seeking free-for-alls that inherently work to protect (or enrich) particular competitors or other interested parties, rather than to protect competition. It is also important to make use of the full range of remedies that do address the specific competitive harms identified. For example, wireless service providers should not be required to make divestitures only from the spectrum acquired in a given transaction; rather, any spectrum divestiture that solves the specific competitive concern at issue should be permitted. In this way, competition can be preserved while minimizing the disruption to providers' investment and expansion plans.

- *To the extent that it changes its policies with respect to mobile spectrum holdings, the Commission should not require divestitures to bring previously completed transactions into compliance with the new policies, but the Commission should apply its policies uniformly on a going-forward basis.* Forced divestitures of spectrum rights that were lawfully obtained under the Commission's then-existing spectrum aggregation policies could be enormously disruptive and—by creating uncertainty about the retroactive application of future rules—would very likely undermine investment incentives. However, any changes in the Commission's policies should be applied uniformly on a going-forward basis, with future transactions evaluated according to the Commission's revised policies without regard for how the parties reached their present market positions.

10. The remainder of this Declaration explains these findings in greater depth and provides details on the facts and analysis supporting them.

II. SPECTRUM AGGREGATION POLICY SHOULD PROTECT UNDISTORTED COMPETITION

11. The analysis in this Declaration is built on a series of general principles that follow from the Commission's overall objective of promoting consumer welfare. Briefly, the principles are as follows. Good spectrum aggregation policy should preserve the flexibility and discipline of the competitive marketplace to the extent possible, relying on regulation only to protect competition in downstream mobile wireless markets from credible threats of foreclosure. Moreover, any required regulation should be implemented in a way that is careful to encourage

investment, rather than to impose investment-deterring and consumer-welfare-reducing restrictions on successful firms.

12. These principles are developed in more detail in the remainder of this section and then used to address the *NPRM*'s questions in the remainder of the Declaration.

A. COMPETITION SHOULD DISCIPLINE MARKET BEHAVIOR, WITH REGULATION USED ONLY TO CORRECT CLEAR MARKET FAILURES

13. Unfettered competition is a powerful (if sometimes imperfect) force for ensuring economic efficiency and maximizing social welfare. It is generally accepted among economists, therefore, that, in the absence of clear evidence to the contrary, the actions of competitive firms (while self-interested) generally promote social welfare and efficiency and that sound regulatory policy should be designed to promote competition because of the benefits that competition can be expected to bring to consumers.[16] These benefits typically come in the form of lower prices, greater innovation and variety, and higher product and service quality.

14. For example, in well-functioning markets, sound economic policy relies on market competition to ensure the efficient allocation of inputs—such as spectrum use rights—recognizing that competition in downstream markets (*i.e.,* the markets for mobile wireless services) creates significant pressure toward efficient spectrum assignment and limits the scope for welfare-enhancing regulation. Among other things, this fact implies that initial spectrum assignments generally should go to the highest-value users through a competitive bidding

[16] In the Telecommunications Act of 1996, Congress stated that purpose of the Act was "[t]o promote competition and reduce regulation in order to secure lower prices and higher quality services for American telecommunications consumers and encourage the rapid deployment of new telecommunications technologies." (Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56, at 1.) "Congress anticipated that the development of competition would lead market forces to reduce the need for regulation." (*Second Biennial Review Order,* ¶ 22.)

process, and that a freely functioning secondary market should facilitate license reassignment (transfer).

B. SPECTRUM POLICY SHOULD SEEK TO PREVENT ANTI-COMPETITIVE FORECLOSURE OF DOWNSTREAM MOBILE WIRELESS SERVICE MARKETS, BUT OTHERWISE SHOULD LET MARKETS FUNCTION FREELY

15. Regulation should be used only when necessary to correct welfare-reducing market failures. This standard implies that regulation should be used only to prevent the use of large spectrum holdings *to foreclose competition:* a theoretically possible, but unlikely, scenario in mobile wireless markets. In contrast, regulation should not be used to protect specific competitors, punish success, or impose rules divorced from downstream competitive effects.

1. Spectrum policy should focus on the effects on competition in the wireless telephony markets into which spectrum is an input.

16. Appropriate Commission policy should seek to promote consumer welfare. As is well recognized by the Commission, spectrum is one input into markets for the mobile wireless services demanded by consumers. Because consumers participate only in downstream mobile wireless services markets, the standard for evaluating regulatory policy should be its effect on those downstream markets, not its effect on spectrum markets *per se.*[17] In order to promote consumer welfare in mobile wireless services markets, Commission policy should protect undistorted competition in those downstream markets.

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[17] This is well recognized by the Commission. For example, in its order sunsetting the spectrum cap, the Commission stated,

> Again, we emphasize that the markets with which we are principally concerned are the output markets for services, and that conditions in the input markets provide only a partial proxy measure of competition in the output markets. Nonetheless, in the context of the output market, the state of control over the spectrum input is a relevant factor.

(*Second Biennial Review Order,* ¶ 27.)

2. Spectrum policy should protect competition, not competitors.

17. In examining whether the acquisition of spectrum could possibly harm competition in downstream mobile wireless markets, it is vital to recognize a fundamental distinction: Protecting consumer welfare mandates that regulation should protect competition, rather than protecting particular competitors from the rigors of the marketplace. Indeed, policies that protect particular competitors are inherently *anti-competitive*, as they insulate those firms from competitive pressures and reduce incentives for other firms to undertake strategies to compete with the protected firms. As such, policies that protect particular service providers (or types of providers) are effectively ways to transfer economic benefits from consumers to the protected service providers.

18. The following hypothetical example makes clear why this distinction is so important. When a supplier invests in innovative, proprietary network features that are attractive to consumers, the introduction of those features harms competitors. This "harm to competitors" may be seen in the fact that the successful innovator gains market share at the expense of its rivals. But although the innovation harms rivals, it benefits consumers. A *pro-competition* public policy would properly favor such an innovation and would benefit consumers. In contrast, a *pro-competitor* public policy might block the introduction of innovative network features and, thus, harm consumers. Alternatively, a *pro-competitor* public policy might restrict the innovator's access to complementary assets, such as spectrum, that are required to utilize and market its innovation fully, thus greatly weakening or even destroying innovation incentives. In either case, a policy that seeks to protect competitors harms competition and consumer welfare.

19. Put simply, consumer interests are not served by regulatory policies that pick winners and losers in the market or tilt the playing field to favor certain competitors. Regulatory policies that limit the ability of efficient and successful suppliers to compete can be expected to harm consumers. Because firms have incentives to attempt to steer regulatory policy to protect themselves from competition, special care should be taken to avoid policies that protect particular competitors.

3. Spectrum policy should not hinder success.

20. A particularly harmful feature of policies that favor certain competitors is that they may become *de facto* taxes on success. A limit or cap on the amount of spectrum that can be acquired is a prime example. Firms that are more successful in selling their products will have higher demand for inputs and, thus, the cap will bind for successful firms. As a result of the binding cap, successful firms will be forced to turn to more expensive ways to expand capacity.

21. Arguments in favor of limiting spectrum aggregation often start from the premise that having additional spectrum automatically creates dominance and that such dominance must be prevented to protect competition. It is clear that spectrum is an important input. But it is equally clear that there are many other elements that are important for commercial success in mobile wireless markets, including investments in network infrastructure, customer service, and marketing. Some service providers are more successful than others at providing products, customer service, marketing, and other activities that consumers find attractive. Generally, those service providers that are most successful in offering services and products that consumers desire are the providers that will have greatest demands for spectrum use rights. Hence, the claim that

large spectrum license holdings trigger competitive success is exactly backward in markets where competitive success triggers a service provider's demand for additional spectrum rights.[18]

22. The fact that competitive success triggers a service provider's demand for additional spectrum rights has important implications for understanding the consumer-welfare effects of increased concentration in license holdings. Specifically, it is critical to recognize that, when the increase in concentration of spectrum holdings results from a wireless service provider's success in using its existing spectrum rights to offer services that consumers find attractive relative to those of rival service providers, the increase in concentration is a sign that consumers are *benefiting* by being able to take advantage of improved mobile service offerings.

23. Although a policy that limits the growth of successful firms may reduce market concentration, minimizing market concentration is *not* equivalent to protecting undistorted competition. For example, taking the number of service providers as fixed, simple arithmetic shows that public policies that equalize competitors' market shares will minimize concentration. However, as the D.C. Circuit succinctly stated, "The Commission is not at liberty … to subordinate the public interest to the interest of 'equalizing competition among competitors.'"[19] From the perspective of economics, the Court's implicit distinction between protecting competition and equalizing competition is a sound one. This is so because, in many cases, a

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18 Note that the success does not always have to predate the spectrum acquisition for this logic to hold. Given the long-term nature of network planning, a firm (Clearwire, for example) may see a competitive opportunity and purchase spectrum as a step in pursuing that opportunity. Even when the timing is reversed in this way, the same logic holds: capping spectrum holdings prevents (or at least limits) such firms from pursuing innovative new offerings.

19 *SBC Communication, Inc., et al., Appellants, v. Federal Communications Commission, Appellee,* 56 F.3d 1484 (D.C. Cir. 1995), citing *Hawaiian Telephone Co. v. Federal Communications Commission,* 498 F.2d 771, 776 (D.C. Cir.1974) and referencing *W.U. Telephone Co. v. Federal Communications Commission*, 665 F.2d 1112, 1122 (D.C. Cir.1981) ("equalization of competition is not itself a sufficient basis for Commission action").

more concentrated market structure can produce greater welfare than a less concentrated one. For example, when market concentration arises from the growth of particularly efficient firms or from economies of scale, network effects, or other sources of increasing returns, higher concentration may yield higher consumer welfare.

24. Likewise, the promise of gaining market share can drive a company to innovate and offer lower prices or higher quality, and the incentive to do so would be undermined if regulators were to announce *ex ante* that the company would be limited in how many customers it could serve.[20] Instead of limiting growth, sound competition policy seeks to ensure that products that are attractive to consumers are able to win out in the marketplace, a goal that is undermined by undue limits on spectrum aggregation.

25. It is important to be clear that the arguments in this section do *not* rely on a claim that limits on spectrum aggregation impose absolute ceilings on the ability of successful firms to grow. Instead, binding limits on spectrum holdings force firms to turn to alternative, *more expensive* means to serve additional traffic, such as additional macro cell splits or increased deployment of small cell solutions.[21] However, economic analysis is clear that raising the marginal costs of successful service providers will reduce industry output and raise equilibrium prices, to the detriment of consumers.[22] Moreover, in addition to the harm to consumers, to the

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20 Indeed, it can be shown algebraically that a policy mandating equal market shares can induce service providers to behave like a monopoly or perfect cartel.

21 For a discussion of the cost benefits created by additional spectrum due to the reduced need to rely on more expensive alternatives to expand capacity, *see,* Federal Communications Commission Staff Technical Paper, *Mobile Broadband: The Benefits of Additional Spectrum*, October, 2010 *available at* http://download.broadband.gov/plan/fcc-staff-technical-paper-mobile-broadband-benefits-of-additional-spectrum.pdf, *site visited* November 14, 2012.

22 Firms may also react by reducing investments in product quality. Throughout this declaration, references to higher prices due to poorly designed regulation should be understood to refer to

extent that raising the costs facing efficient firms causes them to lose some sales to less efficient firms, there will be efficiency harms that result from the reallocation of output from service providers that have relatively low costs (and, thus, would tend to have higher market shares and spectrum demands) to service providers that have relatively high costs (and, thus, tend to have lower market shares and lower spectrum demands).[23] And, over time, the fact that growing firms will ultimately face a "success tax" (via binding limits on spectrum holdings and the resulting need to turn to more expensive ways to expand capacity) is likely to reduce incentives to invest the resources required to succeed in the first place.

4. Policy toward spectrum holdings should focus strictly on the possibility of foreclosure of downstream markets.

26. Imposing blanket rules that limit spectrum holdings would very likely harm competition in downstream markets, to consumers' detriment. Fortunately, there is a well-established antitrust framework generally used to identify situations in which large holdings of particular inputs may pose a concern in downstream markets. The central logic of this framework is that, to raise a competitive concern, there must be a high risk of "foreclosure" in downstream markets. For foreclosure to be a valid competitive concern, two conditions must hold. First, the firm holding the inputs allegedly being used to foreclose rivals must have the ability to withhold the inputs from other firms (or raise the price of the inputs) and thereby raise the costs facing those other firms by an amount sufficient to have a *significant* effect on downstream competition.

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higher *quality-adjusted* prices, which may occur through either higher *nominal* prices or lower quality.

[23] The relative costs refer to differences in costs after taking into account any differences in service qualities.

Second, the efficiencies created by the firm's use of this spectrum must not increase consumer welfare by an amount that outweighs any loss of consumer welfare due to harm to competition.[24]

27. Although the possibility of using spectrum holdings as part of a foreclosure strategy cannot be ruled out on theoretical grounds alone, the facts regarding the usage of spectrum in mobile wireless markets make it highly unlikely in practice. There are currently four established national carriers and numerous facilities-based regional carriers that serve the vast majority of consumers. These providers individually and collectively have substantial spectrum holdings. Indeed, Sprint/Clearwire has the largest spectrum holdings of any carrier and Clearwire has indicated that it will make its spectrum available to others on a wholesale basis. Such conditions make foreclosure strategies unlikely.[25]

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24 Motta (2004) argues that "a number of conditions must hold for a vertical merger to give rise to anti-competitive foreclosure" and that "one should also take into account that the vertical merger might involve efficiencies (other than double marginalisation) that one should balance with the possible foreclosure effects." (Massimo Motta (2004), *Competition Policy: Theory and Practice*, Cambridge University Press, at 374.) Motta also presents a simple model where "there exists foreclosure and the rival downstream firm is hurt by the vertical merger" but "the merger is efficient because it removes double marginalization" and "consumers … gain from the vertical merger." (Motta (2004) at 375 and 376.) Likewise, Chipty (2001) states: "Whether consumers are better off in markets served by vertically integrated operators depends on the relative importance of the strategic and efficiency effects." (Tasneem Chipty (2001), "Vertical Integration, Market Foreclosure, and Consumer Welfare in the Cable Television Industry," *American Economic Review* 91(3):428-453 at 430.)

25 In its most recent Annual Report, Clearwire stated:

> We will continue to place an emphasis on our wholesale business in 2012. We are working collaboratively with our largest wholesale partner to serve its customers with our 4G WiMAX network, as well as identifying optimal locations for new LTE sites to provide capacity where its customers will have the greatest demand for data access. We also plan to further diversify our wholesale customer base. Year to date we have already signed wholesale partners Leap Wireless, Simplexity, and FreedomPop, and expect to make significant progress towards signing additional wholesale partners as the year progresses.

(Clearwire, 2011 Annual Report, *available at* http://corporate.clearwire.com/common/download/download.cfm?companyid=CLWR&fileid=56

28. In addition, an attempt to warehouse spectrum would be both enormously costly to an incumbent and subject to free riding by other incumbents. Attempts to warehouse spectrum are especially costly when an entrant needs only a small fraction of the available spectrum in order to be a viable competitor. This is so because the incumbent would have to purchase licenses to all of the blocks of spectrum that the entrant might potentially utilize, while the entrant need obtain only licenses sufficient to offer viable service. A numerical example illustrates this point. Suppose that there are 400 MHz of suitable spectrum available for license in blocks of 40 MHz each. Also suppose that a service provider needs only one such block in order to be a viable competitor.[26] Lastly, suppose that incumbents currently hold licenses to 280 MHz (70 percent) of the spectrum in some local geographic market. Any one of the three remaining 40-MHz blocks could be used by an entrant to become a new competitor in that market. Hence, an incumbent would have to purchase licenses for all three remaining blocks in order to deter entry. If an entrant were willing to bid up to, say, $40 million in order to obtain a 40-MHz license,[27] the incumbent would have to spend $120 million to block entry through spectrum warehousing.

29. Moreover, as the total amount of spectrum available rises, the cost of deterring entry by warehousing spectrum rises. Using the previous example, suppose that an incumbent was successful in buying all three blocks of spectrum in order to prevent new entry (a strategy costing

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8335&filekey=AD695BFC-210B-49DF-BFCC-103392CD47C2&filename=10K_Clearwire_BMK.PDF, *site visited* November 22, 2012.)

26 See Section III.D below for a discussion of the ability for some firms to compete effectively with relatively limited spectrum holdings.

27 Although we use $40 million only for illustration purposes, we note that in the recent 700 MHz auction (Auction 73), winning bidders spent an average of $12.4 million for the 734 CMA-level Block B licenses which had a bandwidth of 12 MHz. As we discuss below, the auction value of spectrum on a MHz-POP basis can vary greatly, but that does not contradict the logic that a warehousing strategy would be very expensive to undertake.

$120 million), and therefore all 400 MHz of available spectrum was licensed by incumbents. Now suppose that the total amount of spectrum available increases to 720 MHz. If entrants are still willing to pay $40 million for a 40 MHz block of spectrum, then the incumbent would have to buy an additional 320 MHz at a total cost of $320 million to forestall entry. Although the dollar figures given here are only illustrative, note that, because the incumbent has to purchase all the available spectrum to foreclose entry while an entrant only has to purchase enough to enter, the cost of warehousing rises quickly when new spectrum becomes available and it far exceeds the cost of acquiring enough spectrum to enter. Moreover, for the right price, another incumbent might be willing to sell some of its licenses to a potential entrant, thus increasing further the amount of spectrum that an incumbent attempting to deter entry through warehousing would have to purchase.

30. In the end, to sustain a foreclosure strategy based on spectrum warehousing, a firm would not only have to ensure that no other existing spectrum holder sells spectrum to a potential entrant (or facilitates entry via spectrum leases, the lease of wholesale network capacity, an MVNO resale arrangement, or other alternative transactions), but also would need to acquire enough spectrum in all upcoming auctions to ensure that entry was prevented (and, more generally, that competitors were weakened). Specifically, to be successful, a spectrum warehousing strategy would have to contend not only with existing spectrum, but also with spectrum likely to be auctioned as part of the planned broadcast television (600 MHz) incentive auctions, the likely release of AWS-3 (2155-2175 MHz) spectrum, the increased usage of mobile satellite (MSS) spectrum for terrestrial broadband services (with the National Broadband Plan, issued in March, 2010, recommending that the Commission take steps to accelerate terrestrial broadband deployment in 90 megahertz of spectrum in the three MSS bands), and

other future spectrum releases.[28] Given the prices seen in previous spectrum auctions (with total winning bids in the tens of billions of dollars in some auctions),[29] the costs associated with maintaining a foreclosure strategy in the face of these ongoing spectrum releases would be enormous.

31. Two additional factors further reduce the likelihood of a foreclosure strategy involving wireless spectrum. First, the *benefits* of a warehousing strategy are enjoyed not only by the firm engaging in the foreclosure strategy but also by all other (non-foreclosed) firms in the marketplace. Strategies with costs that are concentrated with one firm while benefits are diffuse are relatively unlikely to be profitable: the carrier attempting the foreclosure strategy incurs all of the costs but gains only a fraction of the benefits.

32. Second, to the extent that the Commission imposes network build-out requirements, the *costs* of a spectrum warehousing strategy are increased by the need to invest in network infrastructure to satisfy the build-out requirements even if the infrastructure is not going to be used to offer service. Such additional costs make it even less likely that a warehousing strategy would be profitable. Moreover, because the network infrastructure costs must be incurred whether or not the spectrum is utilized to offer service, build-out requirements reduce the

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[28] *In the Matter of Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993 Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services*, WT Docket No. 10-133, Fifteenth Report, rel. June 27, 2011 (hereinafter, *Fifteenth CMRS Competition Report*), ¶ 267 and note 764. More generally, the *National Broadband Plan* calls for an additional 300 MHz of spectrum to be allocated to mobile wireless by 2015 and for a total of 500 MHz to be added by 2020 (Federal Communications Commission, "Connecting America: The National Broadband Plan," March 2010, at 75, *available at* http://www.broadband.gov/download-plan/, *site visited* November 26, 2012.)

[29] Winning bids in Auction 73 (700 MHz) in 2008 totaled $19 billion; winning bids in Auction 66 (AWS) in 2006 totaled $14 billion. (*Fifteenth CMRS Competition Report*, Appendix A, ¶¶ 11, 17.)

incremental cost of utilizing spectrum to provide service rather than warehousing it. Hence, in the presence of a build-out requirement, these network costs are not incremental costs of offering service once the spectrum rights have been obtained. Therefore, once a firm acquires a spectrum license, it is quite likely to have incentives to utilize the spectrum to offer service rather than to warehouse the spectrum.[30]

C. SPECTRUM POLICY SHOULD NOT DISCOURAGE EFFICIENT INVESTMENT AND INNOVATION

33. In this section, we explain that: (a) innovation is a primary driver of consumer welfare in mobile telecommunications markets, and (b) improperly designed spectrum aggregation policy runs a serious risk of stifling such innovation.

1. Innovation is an important engine of consumer welfare in wireless telephony markets.

34. Innovation is widely recognized as the engine of overall economic growth, and it is critical to the development and distribution of ever-improving mobile wireless services, equipment, and applications to consumers. The Commission has cited innovation as a particularly important driver of consumer welfare gains in the wireless marketplace.[31]

35. Historically, there has been rapid and pervasive technological progress within all layers of the mobile wireless ecosystem, including network technology and services, network management, handsets, mobile access device operating systems, and applications. The most-

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30 It is also worth noting that it defies economic logic to argue that a firm is hoarding spectrum as part of an exclusionary foreclosure strategy, while the firm is imposing data-usage limits on its customers. This follows because data-usage limits by a firm supposedly engaging in anti-competitive hoarding makes it *easier* for other, spectrum constrained firms to compete. This is obviously inconsistent with the allegedly hoarding firm's goal of harming the ability of other firms to compete.

31 *See, e.g., Fifteenth CMRS Competition Report*, ¶¶ 236-237 (wireless broadband as a driver of productivity growth, especially for small businesses) and ¶¶ 327-335 (innovation in devices).

visible (but not the only important) innovations are those at the "edge" devices (*e.g.,* smart phones and tablets), operating systems (*e.g.,* Apple's iOS and Google's Android), and applications (*e.g.,* the Facebook mobile app). Today's smart phones and tablet computers operating over current state-of-the-art mobile wireless networks offer enormous consumer benefits compared to traditional mobile phones operating over previous network generations.

36. These new access devices and applications have dramatically increased demands on mobile wireless networks. Indeed, in recent years, the demands placed on the core wireless networks have increased exponentially.[32] Because of the demands that new devices and applications are placing on the core network, many of the advances in edge applications would be impossible without corresponding investments in network infrastructure and technological advances in the spectral efficiency (*i.e.*, the number of bits that can be communicated over a given amount of bandwidth) of mobile wireless providers' "core" networks.[33] By the same token, advances in network technology and investment in creating faster, more robust wireless networks have made possible the explosive innovation in edge applications.

37. A brief history of the different generations of wireless networks illustrates the importance of innovation and investment in new wireless network infrastructure to support innovation at the edge. The introduction of the second generation of mobile wireless communication ("2G") in the early 1990s allowed the provision of wireless data services, such as text messaging and

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32 *Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2011–2016*, February 14, 2012, at 24, Table 5; *See, also*, *Fifteenth CMRS Competition Report*, ¶ 160 and Table 14.

33 Of course, the acquisition of additional spectrum use rights is also critical to many mobile service providers' abilities to meet the growing demands that wireless networks face.

email.[34] However, 2G networks offered relatively limited bandwidth. Initially, for example, the GSM standard offered download rates only up to 14.4 kbps.[35] Third generation ("3G") networks offered increased spectral efficiency and faster download speeds, and these networks supported a greater array of mobile applications. The most common 3G standards in the United States (CDMA EV-DO, EV-DO Rev. A, and WCDMA/HSDPA) offer typical download speeds of 400-800 kbps, although download speeds can be as high as 3.1 Mbps.[36] Today, U.S. wireless carriers are deploying 4G networks (largely based on the LTE standard) that offer increased spectral efficiency, greater network capacity, and peak data rates of 100Mbps or more.[37] 4G networks support high-bandwidth applications such as multimedia messaging service, video chat, mobile TV, and digital video broadcasting. In addition to supporting a broader array of services, each successive generation of core wireless networks has improved the performance of access devices. For example, successive generations of the iPhone have been able to navigate the Internet at much greater speeds as the result of the evolution of wireless carriers' networks from 2G, to 3G, and now 4G.[38]

38. There is no reason to believe that the fourth generation of mobile wireless networks will be the final one. Continued innovation in the core network layer of the mobile wireless

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[34] *Id.*

[35] *Id.*

[36] *Fifteenth CMRS Competition Report*, Appendix B: Mobile Wireless Network Technologies, ¶¶ 3-4.

[37] MobileInfo, "4G-Beyond 2.5G and 3G Wireless Networks," *available at* http://www.mobileinfo.com/3G/4GVision&Technologies.htm, *site visited* November 12, 2012.

[38] For example, one test found that average download speeds for the iPhone 5, which utilizes LTE networks, were three to five times higher than average download speeds of the iPhone 4s, which utilizes 3G standards. (Kent German, "Data speeds: iPhone 5 vs. Samsung Galaxy S3 vs. iPhone 4S," CNET, September 22, 2012, *available at* http://reviews.cnet.com/8301-19512_7-57518405-233/data-speeds-iphone-5-vs-samsung-galaxy-s3-vs-iphone-4s/, *site visited* November 22, 2012.)

ecosystem is vital for continued innovation at all layers. It should also be recognized that the innovation in core networks necessary to support edge innovation is not limited to increased capacity. For example, AT&T had to make several changes in its network facilities, software, and processes to support the introduction of the Apple iPhone.[39]

39. Investment is also critical. Indeed, without investment there would be little or no innovation. Innovation results from investment in research and development (R&D) activities, and investment in facilities, equipment, and marketing activities is necessary to bring the results of innovation to wireless consumers. Consumers enjoy the full potential benefits of innovation if and only if innovation and investment occur in all parts of the ecosystem, including the core networks. Wireless carriers collectively invest billions of dollars each year on improvements to and innovations in their networks.[40] U.S. wireless carriers reported incremental capital expenditures on their networks of $25.4 billion in the year ending June 2012.[41] Much of this investment was spent to upgrade networks to 4G standards.

40. Because private enterprises are by far the most important sources of innovation and investment in the wireless industry, it is essential that public policy take into account the drivers of private investment and innovation. Private enterprises undertake costly investments—including investments in R&D activities that lead to innovation—if and only if they expect to

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[39] Michael L. Katz, "Measuring Effective CMRS Competition," attachment to "Reply Comments Of AT&T," *Wireless Telecommunications Bureau Seeks Comment On Commercial Mobile Radio Services Market Competition*, WT Docket No. 09-66, July 13, 2009, ¶ 44.

[40] Indeed, the Commission has cited network investment as a "centerpiece of providers' efforts to improve their customers' mobile wireless service experience." (*In the Matter of Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993 Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services*, WT Docket No. 09-66, Fourteenth Report, rel. May 20, 2010, ¶ 105.

[41] CTIA's Semi-Annual Wireless Industry Survey, *available at* http://www.ctia.org/advocacy/research/index.cfm/AID/10316, *site visited* November 15, 2012.

earn a sufficient economic return on those investments. Many investments in wireless involve large sunk costs and highly uncertain returns. It is vital that public policy makers take this risk into account.

2. Improperly designed spectrum policy, including limits on the ability of successful firms to acquire spectrum, is likely to stifle innovation.

41. Limits on the ability of successful carriers to obtain spectrum rights would have adverse effects on innovation because it would be more difficult and costly (and, in some cases, impossible) for a service provider to expand when it had developed a successful business model that would require additional spectrum to meet consumer demand for its services. For instance, one of the most exciting developments in the wireless innovation ecosystem is the rise of the mobile cloud, which enables consumers to have access to their work files and electronic media collections anywhere, anytime. The mobile cloud is expected to spur tremendous increases in traffic levels.[42] Limitations on a service provider's ability to obtain additional spectrum would limit these providers' incentives and abilities to offer cloud services to their customers.

42. The mobile cloud example also illustrates the fact that the harm to innovation would be broad. Innovation by other members of the wireless ecosystem—including handset manufacturers, mobile operating system developers, and application developers—would also be harmed to the extent that their innovations rely on increased network capacity.

43. Consumers would be harmed by the resulting loss of innovation, higher prices, and the consequent reduction in the quality and quantity of mobile wireless services consumed. Moreover, as a result of pass-through effects, consumers of goods and services produced by

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[42] *Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2011–2016*, February 14, 2012, at 11; *See, also, Cisco Global Cloud Index: Forecast and Methodology, 2011-2016*, October 2012, at 9 and 24.

enterprises that rely on mobile wireless services also would be harmed. Further, there would be efficiency harms in addition to those suffered by consumers. For instance, even if the total quantity of mobile wireless services were unchanged, there would be efficiency harms from the reallocation of output from incumbent service providers that had relatively low costs to service providers that had relatively high costs (who would not have obtained as much spectrum absent restrictive spectrum aggregation policies).

3. Implications for appropriate policies toward mobile wireless spectrum holdings

44. Several implications can be drawn from the importance of ensuring that spectrum aggregation policies protect incentives to invest. Because expanding a wireless network is very capital intensive, decisions regarding whether, where, and when to deploy additional spectrum (or instead to utilize other capacity-enhancing investments) require long planning horizons, meaning that efficient investment decisions are promoted by clear rules of the road that enable market participants to predict, with some degree of confidence, whether a contemplated spectrum accumulation is likely to be approved. Because more precise rules of the road tend to reduce uncertainty and risk, they also tend to reduce the cost of capital associated with an investment project, making more projects profitable. Hence, if there are particular conditions under which spectrum acquisitions will generally be approved, these should be laid out with clarity.

45. In particular, care should be taken to limit challenges to potential spectrum acquisitions only to those situations in which it can be demonstrated convincingly that the acquisition is likely to result in the anticompetitive foreclosure of rivals and thereby likely to harm consumers. Otherwise, if challenges can occur in cases where the evidence is more tenuous, firms considering investments will face heightened uncertainty about whether and under what

conditions they will be able to acquire the spectrum required to support growth induced by successful innovation. The result will be reduced investment incentives.

46. When more extensive review is necessary because there is at least a reasonable basis for concern that the proposed transaction may result in anticompetitive foreclosure, firms need to know that the spectrum transaction will be approved if the parties to the transaction can present clear evidence that, upon further examination, the foreclosure concerns are unfounded. In addition, firms need to know the types of evidence on which the Commission will rely in conducting a further examination.

47. Finally, the goal of providing clear rules of the road is *not equivalent* to a goal of providing absolute certainty without regard to the impact on competition and consumers. For example, absolute certainty can be achieved via a hard cap that makes certain spectrum transactions *per se* impermissible, but such a "bright line" rule is patently anti-competitive and likely to harm consumers. To the extent that the motivation for attempting to provide certainty is to reduce risk and thus increase the discounted returns from investments, a rule that rigidly bans certain spectrum acquisitions would be counterproductive, as it would tend to increase costs and lower returns on investments. For example, a rigid rule saying that no wireless merger would be approved if it led to an increase in spectrum concentration in any market would be a clear rule that provided certainty, but it certainly would not be a welfare-enhancing rule.

III. THE COMMISSION SHOULD UTILIZE A SPECTRUM SCREEN WITH A SAFE HARBOR, NOT A HARD CAP

48. In this section, we examine whether the Commission should use an approach based on hard spectrum caps, or a more nuanced, case-by-case approach coupled with a spectrum screen

that defines a safe harbor. We do so by building on the general principles developed in Section II above to determine the policy that best meets the Commission's goal of protecting competition and promoting consumer welfare. Our analysis demonstrates that the Commission can best protect competition and promote consumer welfare by analyzing mergers, license transfers, and spectrum acquisitions on a case-by-case basis, using a screen (no lower than the current screen of one-third of available, suitable spectrum in a CMA) to offer a safe harbor and to target investigatory resources.

A. A Hard Cap on Spectrum Holdings would Harm Competition and Consumers

49. A hard cap or other *per se* restrictions against certain spectrum license transfers or assignments would be contrary to the goal of protecting competition and promoting consumer welfare. There are several mechanisms through which a binding spectrum cap would harm competition and consumers and lead to economic inefficiency:

- As the *NPRM* recognizes, spectrum is often the most efficient and least-costly way of adding wireless network capacity.[43] A spectrum cap would force firms constrained by the cap to use an inefficient input mix—likely relying more heavily on cell splits or even more expensive alternatives like deployment of small cells—when utilizing additional spectrum would be the least-costly way to expand.[44] This inefficiency would raise the costs of expanding service. Economic analysis clearly indicates that raising the marginal costs of successful wireless service providers would generally induce those firms to

43 *NPRM* ¶ 13.

44 *See* n. 21, above.

charge higher prices, reduce quality, and sell less of their services, all of which would harm consumers.

- Some wireless carriers might not find a spectrum cap to be a constraint on their business. However, to the extent that significant rivals of these other carriers were constrained by the cap and, thus, charged higher prices or otherwise competed less aggressively, these unconstrained carriers could also be expected to compete less vigorously. Stated plainly, a binding spectrum cap could create a pricing umbrella for service providers that are unconstrained by the cap. The result would be lower industry output and higher equilibrium prices. *While those carriers unconstrained by the spectrum cap would gain from the loss of competition, consumers would be harmed*.
- In addition to the harm to consumers, there would be efficiency losses resulting from the reallocation of output from service providers that had relatively low costs (and, thus, would tend to have higher market shares and spectrum demands) to service providers that had relatively high costs (and, thus, would tend to have lower market shares and lower spectrum demands).
- Innovation also would be harmed. As described above, a carrier that was deciding whether to develop and introduce a new service or device that was projected to be very popular with consumers and would increase the carrier's need for spectrum would find it more difficult and/or costly to introduce the new service or device in the presence of a spectrum cap. The result would be to weaken innovation incentives and discourage dynamic competition.

- Finally, as is explained in more detail below, a single spectrum cap ignores the economic and engineering reality of differentiation across firms. Different wireless firms have different mixes of devices, different network designs, and more generally, different spectral efficiency for reasons that include sunk investments and choices made by consumers using the networks. As a matter of business strategy, some firms may concentrate on charging relatively high prices to high-intensity users or users who demand particularly high quality, while others charge lower prices to lower-intensity users or users who are willing to accept lower quality. Such differentiation, which is part of well-functioning competitive marketplaces, gives rise to service providers' having different valuations of spectrum rights and, thus, raises the possibility of pro-competitive gains from trade, which spectrum caps may prevent.

50. The central flaw of a rigid cap on mobile spectrum holdings is that it will inevitably harm competition in certain situations. It is impossible to have a rigid rule that captures the complexities of competition in wireless telecommunications.

B. THE ADVERSE EFFECTS PREDICTED BY COMMENTERS OPPOSING THE 2001 SUNSET OF THE SPECTRUM CAP HAVE NOT BEEN REALIZED

51. When the Commission sought comment on its proposal to remove the spectrum cap in effect in 2001, some commenters made dire predictions about the likely consequences of removing the cap. The decade of experience following the removal of the cap in 2003 has provided clear evidence that the predictions of the cap's proponents have not been realized.

52. Professor Peter Cramton was a forceful proponent of retaining the cap.[45] Experience since the removal of the cap contradicts several claims Professor Cramton made regarding the future of the mobile wireless services and the likely effects of removing the cap:

- "Because popular wireless data applications use less spectrum than does voice communication, it is doubtful whether existing spectrum would be exhausted in the near future." (*Cramton Reply Declaration*, ¶ 4) Professor Cramton did not foresee the introduction of advanced devices (smartphones and tablets) and the growing popularity of data-intensive applications used on those devices. The Commission has stated that, compared to a traditional mobile phone, a smartphone can generate 35 times as much traffic and a tablet can generate 121 times as much traffic.[46] We are not implying that Professor Cramton should have predicted these developments when making his comments. To the contrary, we believe such developments are hard to predict. Indeed, over the next decade there surely will be more developments that one cannot fully anticipate today. This fact argues forcefully against inflexible policies such as spectrum caps.

- "The massive consolidation at the local level that will take place across this country when the spectrum cap is removed [is] a foregone conclusion across all interested parties." (*Cramton Reply Declaration*, ¶ 8) In defiance of Professor Cramton's

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45 Professor Cramton submitted two declarations to the Commission on behalf of Leap Wireless: Declaration of Peter Cramton, *2000 Biennial Regulatory Review – Spectrum Aggregation Limits for Commercial Mobile Radio Services*, WT Docket No. 01-14, April 13, 2001(hereinafter, *Cramton Declaration*); Reply Declaration of Professor Peter Cramton, *2000 Biennial Regulatory Review – Spectrum Aggregation Limits for Commercial Mobile Radio Services*, WT Docket No. 01-14, May 14, 2001(hereinafter, *Cramton Reply Declaration*).

46 *NPRM*, ¶ 12

foregone conclusion, the share of the population that has access to multiple facilities-based providers has increased since the cap was lifted. At the time the cap was lifted, 89.3 percent of the population had access to four or more wireless carriers and 71.1 percent had access to six or more.[47] The Commission most recently reported that 94.7 percent of the population now has access to four or more carriers and 76.9 percent has access to six or more.[48]

- "To the extent that the removal of the spectrum cap would slow down entry by new carriers or lead to greater consolidation among existing carriers, removal of the cap would decrease the rate of wireless innovation." (*Cramton Reply Declaration*, ¶ 37) We are unaware of any evidence that wireless innovation has slowed due to consolidation or a lack of entry by new carriers. Indeed, although it is difficult to define precise measures of innovation, there is reason to conclude that there has been more innovation in the last decade than at any time in the mobile wireless industry's history. Rather than becoming moribund, wireless network providers have invested billions in their networks to improve their mobile service offerings.[49] And smaller

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47 *In the Matter of Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993 Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services*, WT Docket No. 02-379, Eighth Report, rel. July 14, 2003, FCC 03-150 (hereinafter, *Eighth CMRS Competition Report*), Appendix D: Mobile Telephony, Table 10.

48 *Fifteenth CMRS Competition Report*, Table 6. This is not to say that there are not efficiencies to be gained by consolidation or that an increase in concentration would necessarily result in reduced competition. It is to say that predictions of "massive consolidation" were wrong

49 In its most recent CMRS Competition Report, the Commission stated, "As mobile voice service has become commoditized and mobile voice penetration is reaching saturation, mobile wireless service providers are differentiating themselves with the speeds, reliability, capabilities, and coverage of their mobile broadband networks and with the handsets/devices, applications, and

carriers have continued to expand: MetroPCS increase its covered POPs from 56 million in October 2008 to 142 million at the end of 2011;[50] Leap increased its covered POPs from 53.9 million in October 2008 to over 95 million at the end of 2011.[51]

- "Removal of the cap would eliminate Leap's chances of obtaining spectrum in the secondary spectrum market." (*Cramton Declaration*, ¶ 9) In fact, Leap has obtained wireless spectrum in both the primary and secondary markets since the cap was lifted. For example, Leap was the winning bidder for 100 AWS-1 licenses in 2006, paying a total of $984 million for the licenses.[52] Leap has also participated in secondary market transaction, *e.g.*, swapping various AWS-1, PCS, and 700 MHz licenses with Verizon Wireless earlier this year.[53]

- "Because the incumbent would be likely to win under those conditions [*i.e.*, without a cap], removal of the spectrum cap may induce non-incumbents to never participate in the auction, knowing that their participation (which is costly in terms of management resources) would be futile." (*Cramton Declaration*, ¶ 41) In fact, auction participants (including winners) have not been confined to incumbents. For example, with regard to the 700 MHz auction held in 2008, the Commission has noted that the

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other products and services that run on those networks." (*Fifteenth CMRS Competition Report*, ¶ 104.)

50 *Fifteenth CMRS Competition Report*, ¶ 70; MetroPCS, 2011 Annual Report, at 8

51 *Fifteenth CMRS Competition Report*, ¶ 69; Leap Wireless, 2011 Annual Report, at 3.

52 "Leap and Denali Announce Successful Participation in FCC's Auction #66; Disciplined Bidding Strategy to Increase Consolidated Spectrum Holdings to 182 Million POPs," *available at* http://phx.corporate-ir.net/phoenix.zhtml?c=191722&p=irol-newsArticle&ID=907235 *site visited* November 15, 2012.

53 *Verizon-SpectrumCo Order*, ¶ 16.

auction "created opportunities for new entrants," as "[a] bidder other than a nationwide incumbent won a license in every market," and "Frontier Wireless LLC (EchoStar), which is widely viewed as a new entrant, won 168 licenses in the E block to establish a near nationwide footprint for its services."[54]

- "If the number of nationwide carriers were reduced to two or three—a result that would obtain if the spectrum cap were removed—the rate of decline in the price of nationwide plans would slow or potentially reverse" (*Cramton Declaration* ¶ 32). Despite the lifting of the cap, the number of nationwide carriers has not been reduced to two or three. Of course, the number of nationwide carriers might have fallen to three if the Commission had allowed AT&T to acquire T-Mobile, but the Commission did not. Whether or not one agrees with the outcome of the AT&T/T-Mobile matter (or with Professor Cramton's claims regarding the linkage between prices and the number of competitors), the critical point is that the Commission has a range of policy tools available to it to protect competition and consumer welfare. A spectrum cap is, at best, a crude means of attaining policy goals that are better met through other means.

53. The lesson is simple: The Commission should be wary of accepting speculative arguments for a cap that have been discredited by the actual experience of the last decade or of adopting inflexible rules that cannot adjust as technology evolves in unforeseen ways.

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54 News Release, Federal Communications Commission, *Statement by FCC Chairman Kevin J. Martin*, March 20, 2008.

C. ADVANTAGES OF A SPECTRUM SCREEN AND CASE-BY-CASE REVIEW

54. Even in the absence of a cap, any Commission concerns about the possibility of foreclosure due to large spectrum holdings should be tempered by the fact that the Commission can undertake a case-by case review of transactions that exceed the spectrum screen. These evaluations take a much more sophisticated view of competitive effects than does a mechanical calculation of whether the transacting parties would have more than a certain amount of a particular input.

55. Among the factors that may be included in a case-by-case review are the following:

- First, the standard questions in a competitive-effects analysis can be considered in detail—keeping in mind that the goal is to determine if the transaction creates significant risk of foreclosure in downstream, mobile wireless markets. Among the most important questions to address in such an analysis would be: How many providers have spectrum and are active in the relevant local markets for mobile wireless services? Where there are multiple established providers of mobile wireless services with their own spectrum holdings (as is currently the case in most relevant markets), the ability to foreclose competition becomes substantially less likely.

- Second, even in cases in which there are a small number of competitors or some competitors currently have small shares, the Commission should consider whether any of the existing competitors appear to have significant unused network capacity and thus headroom for low-cost expansion of output. Related questions would include: Is there unused spectrum available for use by rival service providers? Are there firms seeking to make spectrum (and possibly network facilities) available in the local market on a wholesale basis? Are there service providers not yet in the relevant local markets that might enter and does the market have characteristics that can be expected to make it attractive to those entrants? Is additional spectrum likely to become available in the near future?

- Third, the ownership and governance structure applicable to spectrum holdings in which a firm has financial interests can be reviewed to determine which holdings should be attributed to the firm based on the standard that the firm has sufficient influence over the usage of the spectrum to induce the spectrum to be used as part of an anti-competitive foreclosure strategy.

- Fourth, to the extent that significant foreclosure concerns remain after the above analyses, the specific situation surrounding the spectrum acquisition should be evaluated. For example, has the service provider seeking to acquire spectrum been growing rapidly? Such growth would indicate that the service provider has been offering services that consumers find attractive and that limiting its ability to continue expanding would deny consumers valuable choices.

- Finally, only if the answers to the questions above demonstrate a serious risk of foreclosure, a more rigorous study of likely efficiencies from the proposed spectrum acquisition (*i.e.,* the cost savings or quality enhancements) can be undertaken. These efficiencies can then be quantified in order to weigh them against any likely competitive harms from the transaction.

56. Along with a case-by-case review process, it is appropriate for policy to indicate a threshold *below which* concerns regarding anticompetitive effects are *de minimis* and, thus, to

define a safe harbor within which a transaction will not trigger detailed regulatory review. Such a safe harbor will help to direct scarce investigative resources to the most important issues and, thus, will reduce the chance of enforcement errors. By reducing the chance of errors, as well as by providing clarity to private parties, a screen will serve the Commission's goal of reducing uncertainty about the ability to acquire spectrum and thereby help to promote private investment incentives. Note that this system of a safe harbor coupled with case-by-case review for transactions not meeting the safe-harbor threshold is much like that used by the Department of Justice and Federal Trade Commission to evaluate mergers.[55]

D. THE SPECTRUM SCREEN'S THRESHOLD SHOULD NOT BE REDUCED BELOW ITS CURRENT LEVEL; IF ANYTHING, RECENT DEVELOPMENTS ARGUE FOR A HIGHER THRESHOLD

57. If the Commission continues to rely on a spectrum screen to guide its review of proposed transactions (as we conclude that it should), then it is important that the threshold be set at an appropriate level. A properly designed screen can play a useful role in providing transparency and reducing the social and private costs of merger review. However, a screen that identifies an excessive number of targets for additional investigation because the threshold is set too low can harm competition and consumers by increasing the costs of expansion for a service provider that has developed a successful business model and thus requires additional spectrum to meet consumer demand for its services. In addition, as noted above, a threshold that is set too low can divert scarce investigative resources to the wrong issues, increasing the chance of enforcement errors. Notably, because of increased uncertainty and increased costs imposed on private parties,

55 *See*, Federal Trade Commission and U.S. Department of Justice, Horizontal Merger Guidelines, August 19, 2010.

the ill effects of a poorly set threshold can arise even if transactions for spectrum rights ultimately are allowed to proceed.

58. Several factors indicate that the appropriate threshold is certainly no lower than (and likely higher than) the current one-third rule. First, when removing the cap in 2001 and developing a successor screen in 2004, the Commission pointed to the competitiveness of CMRS markets. Specifically, the Commission indicated that its decision to sunset the use of spectrum caps was based (at least in part) on "the presence of meaningful economic competition in markets for CMRS."[56] In supporting this finding, the Commission pointed to the fact that at the end of 2000, approximately 91 percent of U.S. residents lived in counties that each were served by three or more mobile telephony providers, with 75 percent living in counties with five or more providers.[57] According to the Commission's 2011 wireless competition report, by 2010, those numbers had increased to 97.4 percent of U.S. residents living in *census blocks* served by three or more wireless providers, with 90 percent living in census blocks served by five or more providers.[58] Hence, by this metric "meaningful economic competition" has only increased since

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56 In its review of the cap in 2001, the Commission stated that "[w]ith regard to the product market for mobile telephony, we find that there is 'meaningful economic competition' in urban markets generally, but that rural markets are much less competitive than urban markets, with most rural counties having three or fewer competitors currently offering such services in any portion of the county….On balance, and in light of the strong growth of competition in CMRS markets since the initiation of the spectrum cap, we decide today that we should move from the use of inflexible spectrum aggregation limits to case-by-case review of spectrum aggregation and enforcement of other safeguards applicable to such carriers based on evidence of misconduct. (*Second Biennial Review Order*, ¶¶ 5-6, 30.) And in its first articulation of the spectrum screen to be used in case-by-case analysis, the Commission found that "there is generally effective competition in mobile telephony markets today" and set the spectrum screen at a level such that it "ensured that we subjected to further review any market in which the level of spectrum aggregation will exceed what is present in the marketplace today." (*AT&T-Cingular Order*, ¶ 107, 109)

57 *Second Biennial Review Order*, ¶ 31.

58 *Fifteenth CMRS Competition Report*, Table 6.

the order removing the cap; today nearly as large a percentage of residents lives in an area served by five or more providers as lived in areas served by three or more providers in 2000.

59. A second reason why the current threshold is a lower bound on the appropriate level of the screen builds further on the Commission's approach of examining the number of active competitors. Specifically, there are many CMAs in which the largest firm has more than one-third of the spectrum that the Commission currently counts toward the screen, and yet the market has at least three—and even up to six—competitors.[59] Table 1 below summarizes the data. We divide CMAs into those where no license holder exceeds the screen in any county in the CMA (the top two rows of the table) and those where at least one license holder exceeds the screen in at least one county in the CMA (the bottom rows of the table). The first and third rows of the Table shows *the share of CMAs* in each group that has two or more competitors, three or more competitors, *etc.*; the second and fourth two rows show similar calculations for the *share of population*. As seen from the first row, in CMAs in which no carrier exceeds the screen, 89

[59] The Commission currently includes the following spectrum in its screen: Cellular (50MHz), PCS (120 MHz), 1.9 GHz band (10MHz), SMR (26.5 MHz), AWS-1 where available (90 MHz), 700 MHz band (70 MHz), and BRS where available (55.5 MHz). We followed the methodology described by the Commission in determining the screen on a county-by-county basis: For markets where both AWS-1 and BRS are available, the screen is 145 MHz. For markets where AWS-1 is available but BRS is not, the screen is 125 MHz. For markets where BRS is available but AWS-1 is not, the screen is 115 MHz. And for markets where neither BRS nor AWS-1 is available, the screen is 95 MHz. (See Verizon Wireless-ALLTEL Order at ¶ 64.) In our calculations of spectrum for each company, we evaluated the licenses held by each carrier at the county level, and the licenses leased from another holder, including Sprint and Clearwire leases of a maximum of 55.5 MHz of BRS spectrum, where applicable. All Clearwire BRS spectrum (up to 55.5 MHz) is attributed to Sprint. If the screen was exceeded by a single license holder in any county in a CMA, we classified the CMA as having a carrier that exceeded the screen. Competitor counts are based on estimates of subscriber market shares by carrier and CMA provided by AT&T. (Hereinafter, *AT&T market share estimates*.) We counted a carrier as a competitor in a CMA only if the carrier had at least two percent market share in the CMA. This two-percent level was chosen because the Commission counts a carrier as a competitor in a CMA if it has two percent of connections in the CMA. (*See*, *Fifteenth CMRS Competition Report*, ¶ 47.)

percent have three or more competitors, and 66 percent have four or more competitors. As seen from the third row, in the CMAs where at least one carrier currently exceeds the screen in at least one county, 96 percent have at least three competitors, and 70 percent have four or more competitors. Similarly, of the population in CMAs in which no carrier exceeds the screen, 98 percent have access to three or more competitors and 90 percent have access to four or more competitors, matching the figures for CMAs where at least one carrier exceeds the screen. The data demonstrate that having many competitors is consistent with having a firm that exceeds the screen.

Table 1: Share of CMAs as Determined by (a) Whether a License Holder Exceeds Current Screen and (b) Number of Competitors

	No. of Competitors				
	1	2 or more	3 or more	4 or more	5 or more
Share of CMAs where no holder exceeds the screen	1%	99%	89%	66%	37%
Share of population in CMAs where no holder exceeds the screen	0%	100%	98%	90%	71%
Share of CMAs where at least one holder exceeds the screen	0%	100%	96%	70%	30%
Share of population in CMAs where at least one holder exceeds the screen	0%	100%	98%	90%	57%

60. Third, economic logic and technological realities explain why firms can be successful with relatively small spectrum holdings, certainly with spectrum holding smaller than other firms in the same market and smaller than one-third of the available spectrum. Reasons include;

- The mobile wireless services industry comprises differentiated firms selling differentiated products. As such, some firms may serve consumers with much higher usage than others; some firms may serve consumers (including commercial consumers served by "machine-to-machine" service) that rely on less spectrally efficient technology than others; and some firms may differentiate themselves via higher service quality (*e.g.*, lower dropped call rates or faster data speeds) than others.

Some firms may provide "unlimited data" plans to customers who value such plans, while other firms may specialize in more limited data plans for customers who place lower value on data usage or are willing to pay more in the specific months in which their data usage needs are higher. Such differentiation across firms is generally an efficient outcome of the competitive process—as firms seek to meet the needs of heterogeneous consumers—and it gives rise to differential spectrum needs across firms.

- It is well established that, over time, technological advances in radio networks lead to more efficient usage of spectrum (*e.g.,* 4G LTE service has substantially higher spectral efficiency than does 2G or 3G service).[60] It is also clear that, for existing firms with established 2G or 3G networks, time is required to migrate users to the more spectrally efficient technologies, with spectrum needs increased by the need to support the older technologies, at least during the transition. New entrants on the other hand have the option of "leapfrogging" to the latest technology, thus creating one way in which entrants can get by with less spectrum.

61. Empirical evidence supports the fact that firms can succeed with relatively small spectrum holdings. For example:

60 *See, Fifteenth CMRS Competition Report*, Appendix B: Mobile Wireless Network Technologies.

- Metro PCS competes in 78 CMAs, and it has 20MHz or less in 73 of those CMAs. Notably, based on AT&T market-share estimates, Metro PCS has achieved at least ten percent market share in 17 CMAs where it has 20 MHz or less spectrum.[61]

- Leap competes in 105 CMAs and has achieved at least ten percent estimated market share in 14 CMAs where it has no more than 20 MHz of spectrum; in three of those CMAs, Leap's estimated market share is in excess of 20 percent.[62]

- US Cellular has been very successful in many of the markets in which it competes. In some CMAs, US Cellular's estimated market share is in excess of fifty percent with spectrum holdings of less than 50 MHz.[63]

62. More generally, there is substantial variation in spectrum holdings across the firms actively competing in many CMAs. Figure 1 below shows estimated market shares and spectrum-holding shares for mobile wireless service providers in the 50 largest CMAs measured by population.[64] Each point on the chart represents the spectrum-holding share and estimated market share for a particular wireless carrier in a particular CMA where that carrier has at least a five-percent estimated market share. As expected, the two shares are positively correlated; all else equal, service providers that are more successful at attracting consumers have greater

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61 That is, MetroPCS has at least two percent of subscribers in 78 CMAs, as estimated in data provided by AT&T. Calculations based on *AT&T market share estimates* and data downloaded from the Commission's "Spectrum Dashboard," *available at* http://reboot.fcc.gov/reform/systems/spectrum-dashboard, *data downloaded* October 18, 2012, (hereinafter, *Spectrum Dashboard*).

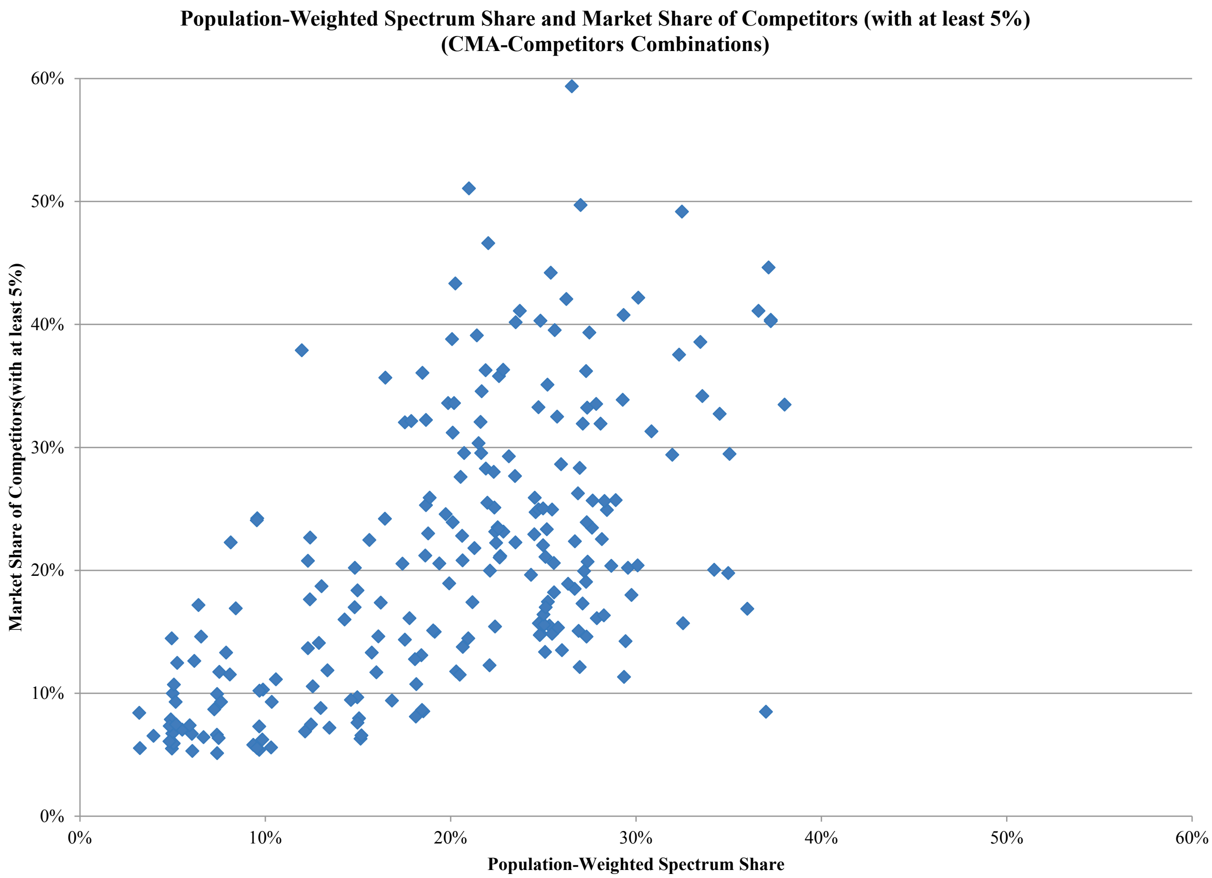
62 Calculations based on *AT&T market share estimates* and *Spectrum Dashboard.*

63 *AT&T market share estimates;* and *Spectrum Dashboard.*

64 Calculations based on *AT&T market share estimates* and *Spectrum Dashboard*. For this analysis, we use population-weighted spectrum holdings only (excluding leases) to avoid double counting of leases and held licenses.

demands for spectrum rights. More importantly, it is evident that carriers are successfully competing with very different spectrum shares. A high spectrum share is no guarantee of a high market share—for example, there is one CMA where Sprint has a spectrum share over 35 percent but an estimated market share below 17 percent. Conversely, as demonstrated by the examples above, a low spectrum share need not be an obstacle to attaining a high market share. As a general matter, the lack of a tight relationship between spectrum share and market share implies that there is no basis to conclude that more spectrum equates to dominance or the ability to foreclose competition, certainly not if the additional spectrum simply pushes a firm slightly above the current one-third screen.

Figure 1



63. Indeed, the Commission itself has recognized that wireless providers are likely to be able to succeed with less than one-third of available spectrum. In its first application of the spectrum screen (in which it provided a rationale for the "one-third rule"), the Commission stated that:[65]

> because spectrum is a necessary resource for wireless carriers to compete effectively, we also further analyzed those markets in which, post-transaction, the Applicants would have 70 MHz or more in at least part of the market. By selecting 70 MHz as the threshold, we ensured that we subjected to further review any market in which the level of spectrum aggregation will exceed what is present in the marketplace today. *As an initial matter, although 70 MHz represents a little more than one-third of the total bandwidth available for mobile telephony today, we emphasize that a market may contain more than three viable competitors even where one entity controls this amount of spectrum, because many carriers are competing successfully with far lower amounts of bandwidth today.* [Emphasis added.]

In reviewing this Commission statement, it should also be recognized that this type of historical approach provides, at best, a one-sided test. The Commission concluded that mobile wireless markets performed well and were competitive given the observed levels of license holdings. It does not, however, follow that market performance would deteriorate or that competition would be weakened if one or more service providers were to obtain licenses for greater amounts of spectrum. In fact, there is no reason to believe that increases in license holdings above the levels historically observed would suddenly trigger a weakening of competition.

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[65] *AT&T-Cingular Order*, ¶ 109.

The Commission recently affirmed this approach, stating:

> The current screen identifies local markets where an entity would acquire more than approximately one-third of the total spectrum suitable and available for the provision of mobile telephony/broadband services. For our analysis of the proposed transactions before us, we continue to apply the spectrum screen that the Commission has used in recent mobile wireless transactions.

(*Verizon-SpectrumCo Order*, ¶ 59.)

64. A fourth factor indicating that the current threshold is a lower bound on the appropriate level is that, as a result of Commission actions, as well as continuing technological innovation, increasing amounts of spectrum have become—and are becoming—available for use in the provision of mobile wireless services. Increases in the amount of suitable spectrum have significant effects on the amount of spectrum available for competing service providers—which is highly relevant for determining whether foreclosure can occur.[66] When there are 500 MHz of suitable spectrum, a single entity could hold licenses to 300 MHz and there would still be room for two competitors even if they each needed 100 MHz to carry out their business plans. If more spectrum is available, then the threshold value for the spectrum screen needed to ensure that two competitors each could have licenses to 100 MHz increases 1-for-1 with the increase in the total suitable spectrum. For instance, if there is a total of 650 MHz of suitable spectrum, then a single entity could hold licenses to 450 MHz and room would remain for two competitors that each required 100 MHz to carry out their business plans.[67]

65. A fifth factor supporting a higher threshold is that mergers and other spectrum transfers are generally reviewed by the federal antitrust agencies. Stated in terms of decision theory, this fact creates an asymmetric loss function when the Commission balances the cost of Type I and

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66 *In the Matter of Applications of Western Wireless Corporation and ALLTEL Corporation For Consent to Transfer Control of Licenses and Authorizations*, WT Docket No. 05-50, Memorandum Opinion and Order, FCC 05-138 (rel. July 19, 2005), ¶ 49.

67 Of course other factors including increases in traffic, improvements in spectrum utilization, potential ability to rely to some extent on unlicensed spectrum on WiFi networks, also bear on the question of the amount of spectrum needed to compete effectively and the appropriate screen. The critical points are that: (i) such changes argue strongly against a spectrum cap, which is unlikely to be flexible enough to deal with the ongoing technological evolution of the wireless industry; (ii) a spectrum screen should regularly be re-evaluated and adjusted in the light of such changes; and (iii) actual market outcomes should guide decisions about the amount of spectrum required to compete given evolving conditions.

Type II errors.[68] If the Commission sets its threshold too low, it unnecessarily devotes resources to examining transactions that do not pose a risk of harm to competition, increases the chance of error, dampens private investment incentives, and attenuates competition. However, if the Commission sets its threshold too high, transactions that do not trigger detailed review by the Commission still will be subject to review by the federal antitrust agencies. This review serves as a regulatory backstop and ensures that any harm to competition associated with setting the threshold at too a high a level would be limited.

66. Lastly, it is important to recognize that the threshold should be raised by even more if the Commission moves away from using the threshold to define a safe harbor. This conclusion is another direct application of the principles of decision theory. If the Commission is going to investigate even instances where spectrum aggregation falls below the threshold, then the danger of false negatives (*i.e.,* of not finding competitive harm when in fact there is competitive harm) is lower for any given threshold level. Thus, the Commission logic that supported the conclusion that one-third is an appropriate level for a safe harbor must also support the conclusion that a higher level is appropriate when the screen is not used as a safe harbor. Indeed, a cap as low as one-third would likely foreclose transactions that would be in the public interest, as shown by the Commission's approval of transactions where the Commission found that its existing one-third threshold was exceeded in some instances.[69]

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[68] In this context, a Type I error (a false positive) occurs if the Commission rejects a spectrum acquisition that is not anti-competitive. A Type II error (a false negative) occurs if the Commission allows a spectrum acquisition that is anti-competitive.

[69] For example, the Commission approved Verizon's acquisition of ALLTEL, despite the fact that, even after voluntary divestitures, 118 CMAs exceeded the screen. The Commission examined only ten of these CMAs in depth (concluding that there was no likelihood of competitive harm in the other 108 CMAs) and required divestitures in five of the examined CMAs. (*Verizon-ALLTEL*

E. THE PRINCIPLES DESCRIBED IN THIS SECTION APPLY TO THE EVALUATION OF OUTCOMES OF SPECTRUM AUCTIONS

67. To be clear, it is appropriate to apply a safe harbor, together with case-by-case analysis of holdings above that safe harbor, not only to mergers or other secondary market spectrum transactions, but also the outcomes of spectrum auctions. In particular, the logic that, except in cases of clear market failure, the competitive process should be relied on to allocate assets applies with equal force to spectrum auctions (in the primary market) as to other transactions (in the secondary market). As such, initial spectrum rights assignments should generally go to the highest-value users through a competitive bidding process, and a freely functioning secondary market should facilitate license reassignment. Industry participants now have sufficient experience with auctions, license transfers, and Commission policies that there is no need for a hard spectrum cap that places *ex ante* limits on the abilities of firms to bid for spectrum licenses at auction. Instead, *ex ante* guidelines, coupled with *ex post* review and (where appropriate) remedies, will better protect competition and promote consumer welfare.

68. In addition to this general principle, the following specific points apply to Commission policies regarding mobile spectrum holdings in the context of spectrum auctions:

- When analyzing spectrum auctions, there is no need to utilize different screens or standards for case-by-case analysis than those developed above. The same logic regarding appropriate screens applies, and the relevant question is whether, following

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Order, ¶¶ 3, 98-113.) The Commission also allowed aggregations of spectrum in excess of the screen in other cases, including, among others, ALLTEL-Western Wireless, and Sprint-Nextel-Clearwire. (*See, Alltel-Western Wireless Order*, ¶¶ 123-25, 128; *In the Matter of Sprint Nextel Corporation And Clearwire Corporation, Applications For Consent to Transfer Control of Licenses, Leases, and Authorizations*, WT Docket No. 08-94, Memorandum Opinion and Order, FCC 08-259 (hereinafter, *Sprint Nextel-Clearwire Order*), ¶¶ 81-83.)

the auction, *total* spectrum holdings by a particular firm (combined with other market conditions) are sufficient to generate significant, credible risk of downstream market foreclosure.

- Because previous spectrum acquisitions have necessarily been approved by the Commission, it is appropriate to ask whether the *incremental* spectrum acquisition via the auction is sufficient to generate competitive concerns. If the increase in spectrum holdings is relatively small (but sufficient to push a firm over the screen), there should be clear and compelling evidence why such a small incremental acquisition of spectrum raises competitive concerns before any regulatory investigation or action is considered.

69. To the extent that analysis of a particular auction result reveals that spectrum holdings are excessive, a remedy can be applied. The Commission and Department of Justice now have extensive experience dealing with a wide range of transactions involving spectrum licenses. If necessary, these agencies can seek spectrum divestitures. A firm bidding in a primary auction would understand the regulatory risk associated with license acquisitions (particularly large ones) that push it above the screen. But such a firm would also know that it would have the right to defend its acquisitions in a Commission proceeding and, thus, could choose to proceed with the acquisition if, based on its private information, it viewed the pro-competitive case for the acquisition as sufficiently strong. A firm might also purchase spectrum knowing that it would have to divest other spectrum in order to obtain regulatory approval. Such a strategy could be economically rational and pro-competitive if it allowed the firm to obtain spectrum that better fit with its business and network strategies than did its existing holdings.

IV. ANY SPECTRUM SCREEN SHOULD BE GROUNDED IN ECONOMIC PRINCIPLES

70. In this section, we discuss specific issues involved in the design and implementation of a spectrum screen, including: the definition of relevant markets; whether there is value in having a national-level spectrum screen in additional to a screen applied in local markets; what spectrum to include when computing spectrum holdings; and whether spectrum should be treated uniformly or subject to a weighting scheme under which the weight attached to a given number of MHz in calculating the amount of spectrum held and applying the screen varies by frequency bands. As before, we approach these topics using the general principles developed in Section II to determine the policy that best meets the Commission's ultimate goal of promoting consumer welfare.

A. RELEVANT MARKETS

71. The *NPRM* poses several questions regarding relevant markets. In this part, we address those questions. At the outset, it should be observed that market definition is a tool, not an end in itself. Sound market definition requires understanding the use to which the market definition will be put and then defining market boundaries that are appropriate given that use.

1. The Commission does not need to change its downstream relevant product market in order to adopt good spectrum aggregation policy.

72. The purpose of market definition in a review of spectrum holdings is to provide a basis for assessing how the distribution of spectrum licenses—and policies restricting the distribution of spectrum licenses—might affect competition to provide mobile wireless services to consumers. If a wireless carrier seeks additional spectrum use rights, the Commission's concern is that the acquisition may somehow diminish or constrain competition in the downstream

markets in which that carrier competes. Making that assessment requires determining what the downstream markets are.

73. The Commission previously has defined the relevant downstream product markets to include both mobile wireless voice and mobile wireless data services, and there is no reason for the Commission to change its view. Mobile wireless services are increasingly sold in packages of voice and data services. Moreover, spectrum is fungible between voice and data services. Therefore, in evaluating any hypothetical attempt to foreclose competition only in voice or only in data, competition from firms providing combined voice/data products would need to be considered, as would the full set of spectrum used for either voice or data services. And any screen that attempted to target only spectrum used for voice or only spectrum used for data would effectively be meaningless due to the fungibility of spectrum across the services. Consequently, the only sensible policy is to define markets based on all wireless (voice and data) services, but then to consider any issues unique to voice or data services as part of a case-by-case review.

2. The Commission should continue to use local markets as the relevant geographic market.

74. As with defining the product scope of a market, the purpose of defining the geographic scope of the market is to determine the area that should be included when undertaking a competitive assessment of a spectrum transaction, both when applying initial screens and when performing more-detailed, case-specific analysis where necessary. From this point of view, it is clear for several reasons that the local (CMA) market definition currently used by the Commission should be maintained:

- The most fundamental component of a competitive analysis involves a determination of the relevant set of competitors, their shares, and their other pertinent characteristics. This is inherently a local question: At a point in time, consumers in any particular CMA can choose only among the carriers serving subscribers in that CMA, *i.e.*, the active competitors in that CMA (other carriers may be potential entrants). To define a national market, one would have to believe, for example, that Cricket is a relevant competitor even for customers living in CMAs where Cricket holds no spectrum and has no market share, a nonsensical conclusion.
- Just as Cricket's service offerings are not fungible across local markets, its spectrum holdings are not fungible across local markets. For example, spectrum holdings in Tulsa, Oklahoma cannot be used to serve customers in Los Angeles, California.
- Core elements of competition between wireless carriers vary locally. Most obviously, spectrum holdings and network infrastructure vary locally, as does the traffic carried on each network, and the network performance. As such, there is not a uniform "AT&T product" competing nationwide, but rather a set of local-area-specific networks with certain common characteristics, marketed under a common brand name. Indeed, we understand that AT&T and other firms expend substantial effort tracking the relationship between churn in local markets and local network quality, with local managers compensated based on local churn performance. These local competitive characteristics can properly be accounted for only by conducting competitive analyses on local markets.

- The fact that some elements of service and pricing are set nationally—perhaps due to economies of scale in national advertising—does not change the fact that important pricing components can and do vary locally, consistent with the fact that markets are local.[70] In any case, any effect of national pricing considerations (such as the use of national monthly pricing plans) is simply one factor appropriately considered in a local competitive analysis. In addition, the relevant price for consumer choices is the *quality-adjusted* price, which clearly varies locally (even if nominal prices do not vary) due to the quality differences described above.[71]

- Even if consumers care about national network coverage, or other elements of the "nationalness" of a wireless carrier, these elements are best thought of as product characteristics of differentiated service providers competing in local markets.

B. ECONOMIC PRINCIPLES DO NOT SUPPORT THE APPLICATION OF A NATIONWIDE SPECTRUM SCREEN

75. The *NPRM* seeks comment on whether the Commission should adopt an approach under which one spectrum screen is applied at the local level and another spectrum screen is applied on a nationwide basis. For the reasons explained in this part, such a change to the current procedure of applying the spectrum screen separately to each local market is not warranted.

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70 We understand from AT&T that pricing terms including whether activation fees are charged and the size of handset subsidies are determined at the local level.

71 For a discussion of the importance of quality-adjustments to prices, see U.S. Bureau of Labor Statistics, Hedonic Models in the Producer Price Index, June 2011, *available at* http://www.bls.gov/ppi/ppicomqa.htm, *site visited* November 3, 2012.

1. A nationwide screen would not add any meaningful information to that already captured by a local screen.

76. Because no mobile wireless service provider can have spectrum holdings in more than 100 percent of the local markets, a nationwide screen would have no impact unless its threshold were set lower than the local screen's threshold.[72] That is, unless the national threshold were set lower than the local thresholds, a spectrum transaction could never cross a national threshold without also crossing at least some local thresholds (*i.e.,* in those areas where the party had particularly large spectrum holdings). If the local threshold is set at an appropriate level, then there is no sound public-interest rationale for setting a lower nationwide threshold.

77. To see why there is no justification for a lower nationwide threshold, consider a mobile wireless service provider that would be below the local threshold in every market both before and after a proposed transaction was consummated. Moreover, suppose the service provider would be below the nationwide threshold prior to the transaction, but would be above the nationwide threshold if the transaction were consummated as proposed. There are two ways in which such a situation could arise. First, the firm could deepen its spectrum license holdings in one or more local markets in which it is already active. Given that the provider's holdings would continue to fall under the local threshold, there would be no concern that the transaction would harm competition in any local market. Consequently, there would be no harm to competition nationwide. Stated another way, if there is no threat of foreclosure in any local market, there can be no threat of foreclosure in the nationwide collection of local markets.

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72 By "lower than the local screen's threshold," we mean to include cases where the national screen is more stringent either because it has a lower threshold parameter, uses different attribution rules, or uses different grandfathering rules than does the local screen.

78. The second way that a firm could trigger the nationwide screen but not the local screen would be by expanding its spectrum license holdings into a new local market. Depending on how much lower the nationwide threshold was than the local one, a mobile wireless service provider might trigger the national screen by obtaining licenses to only 10 percent (or even less) of the suitable spectrum in the new local market. It is evident that such holdings could not harm competition in that local market—indeed, expansion into new markets would be pro-competitive—and it is plainly implausible that such holdings could somehow harm competition at a national level. Rather than protecting competition, a nationwide threshold set at a lower level than local thresholds would potentially limit the realization of cross-market asset complementarities, thus driving up prices and harming consumers.

2. A nationwide spectrum threshold would sacrifice clarity and transparency and thus would destroy much of the value of having a spectrum screen.

79. An additional flaw of a nationwide threshold is that it would undermine the use of the screen as a means of focusing investigative efforts in a clear and transparent way. Presumably, if the nationwide threshold were crossed, the logic of a nationwide threshold would imply that the transaction be reviewed for its effects in *every* local market—possibly including even those local markets in which the parties to the transaction have no spectrum holdings—in order to determine the effects on national competition. Given the Commission's lack of a coherent and fact-based framework for determining nationwide competitive effects, such an approach would dramatically reduce the transparency of the process and increase policy-induced uncertainty.

3. Concerns about control of a particular spectrum band do not justify a nationwide spectrum screen.

80. In recent Commission proceedings, certain commenters have voiced concern over the ability of particular providers to "control" a particular band of spectrum via nationwide holdings.[73] Such concerns provide no basis for a nationwide spectrum screen, whether overall or band-specific. A particular band of spectrum is not an input that can be the basis of a foreclosure strategy. Even if one carrier had license rights to all of the spectrum in a given band nationwide, other carriers still could use other spectrum bands to compete effectively. Indeed, multiband handsets are commonly used throughout the industry today. Hence, as we have pointed out elsewhere, such complaints about band control appear ultimately to reflect a desire by certain mobile wireless service providers to "piggyback" on the same handsets, operating on the same bands, as those used by large service providers.[74] However, because the ecosystems in which handsets are developed are global in scope, and because a given handset can easily be adapted to use multiple bands, there can be no valid foreclosure theory based on the effect of U.S. spectrum holdings in one band on rival providers' access to handsets.[75] Instead, complaints about control of particular spectrum bands appear to be attempts by competing firms to obtain forced-piggybacking on the offerings of successful firms, which—in the absence of a valid foreclosure theory—would be another example of a public policy that protected competitors, not competition.

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73 *AT&T-Qualcomm Order*, ¶¶ 46-51.

74 *See*, Report of Mark A. Israel, Michael L. Katz, and Allan L. Shampine, Attachment B to Reply Comments of AT&T Services, Inc., *In the Matter of Promoting Interoperability in the 700 MHz Commercial Spectrum*, WT Docket No. 12-69, July 16, 2012, ¶ 6.

75 *Id,* ¶¶ 9, 36-38.

C. THE COMMISSION SHOULD INCLUDE IN THE SCREEN THE WIDE RANGE OF SPECTRUM SUITABLE FOR PROVIDING MOBILE WIRELESS SERVICES

81. With regard to the question of what spectrum should be included in a spectrum screen, the answer is simple: The screen should include any spectrum that is currently used to support mobile wireless offerings in the marketplace or that will soon be used to support such offerings. Any other policy—in which certain spectrum used in the marketplace counts toward a screen while other spectrum does not—would lead to inefficient incentives to choose spectrum to avoid a screen, rather than to provide mobile wireless services as efficiently as possible.

82. In addition to the spectrum bands currently being used, the decision regarding what bands to include should be forward looking, including bands that are likely to be usable in the near future. According to the Commission,[76]

> [it] determined to include, in its evaluation of potential competitive harm, spectrum in particular bands that is "suitable" for the provision of mobile telephony services … [where] suitability is determined by whether the spectrum is capable of supporting mobile service given its physical properties and the state of equipment technology, whether the spectrum is licensed with a mobile allocation and corresponding service rules, and whether the spectrum is committed to another use that effectively precludes its uses for mobile telephony.

83. Several sound principles are stated in, or implied by, this quotation.[77] Specifically, the quotation reflects the fact that a sound policy must be forward looking and recognize that the Commission can influence future spectrum availability. Technology clearly is an important consideration in the assessment of which spectrum is suitable for the provision of competing services. But, as the Commission is well aware, technology is constantly evolving. Given that

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76 Memorandum Opinion and Order, November 15, 2007 (hereinafter, *AT&T-Dobson Order*), ¶ 26 [internal footnote omitted].

77 This comment applies solely to the general principles. We are not offering any opinion on the Commission's review of either the AT&T-Dobson or AT&T-Cingular transactions.

current Commission policies will affect future competitive conditions, the Commission's approach to the determination of what is technologically suitable should be forward looking and recognize that innovation is constantly improving the ability to use various bands to provide mobile wireless services.

84. Although technology can evolve in unforeseen ways that affect the usefulness of any particular band of spectrum, at least two pieces of evidence are particularly informative to a determination of whether a particular spectrum band is likely to be used in the near future. First, any spectrum bands for which firms are currently investing significant resources to develop a network and/or market future service should be viewed as likely to be used to provide mobile wireless service in the near future. Second, the existence of a global ecosystem of handsets and other equipment associated with a given spectrum band—such as exists for LTE service in the 2.5 GHz band—provides further evidence in support of the band's likely usage in the U.S. in the near future.[78]

85. A specific example of spectrum that is currently excluded from the screen but that should be included to further the public interest is the 2.5 GHz BRS/EBS spectrum used by Clearwire Corporation. In particular, it is our understanding that the Commission currently includes only 55.5 MHz of the full 194 MHz of BRS/EBS spectrum when applying its spectrum screen.[79] Although we do not comment on the specific engineering details of all portions of this BRS/EBS spectrum, the conclusion that follows from the principles described in this Declaration is

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[78] *See,* Joan Lappin, "The Whole World Is Moving Toward 2.5Ghz Spectrum As U.S. Investors Ignore Clearwire," *Forbes*, June 29, 2012, *available at* http://www.forbes.com/sites/joanlappin/2012/06/29/the-whole-world-is-moving-toward-2-5mhz-spectrum-as-u-s-investors-ignore-clearwire/, *site visited* November 22, 2012.

[79] *See, Sprint Nextel-Clearwire Order*, ¶¶ 62-71.

straightforward: All such spectrum should count toward the screen unless there is clear evidence that *certain, specific portions of the spectrum* cannot be used for provision of mobile wireless services now or in the near future (and then only those specific portions should be excluded). This conclusion follows from the following facts:

- There appears to be no dispute that nearly all of Clearwire's licensed spectrum is suitable for providing mobile wireless services. Several years ago, the Commission concluded that "BRS spectrum is capable of supporting mobile telephony services given its physical properties and the state of equipment technology and the spectrum is licensed with allocation and service rules that allow mobile uses."[80] Dr. John Saw, Chief Technology Officer of Clearwire, has stated that[81]

  > Our extensive trial has clearly shown that our 'LTE Advanced-ready' network design, which leverages our deep spectrum with wide channels, can achieve far greater speeds and capacity than any other network that exists today. Clearwire is the only carrier with the unencumbered spectrum portfolio required to achieve this level of speed and capacity in the United States.

  The fact that Clearwire is actually using this spectrum, including for its forthcoming LTE offerings, provides strong evidence that it must count toward the spectrum screen if the screen is to capture competitive realities.[82]

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80 *Applications of Cellco Partnership d/b/a Verizon Wireless and Rural Cellular Corporation for Consent To Transfer Control of Licenses, Authorizations, and Spectrum Manager Leases*, Memorandum Opinion and Order and Declaratory Ruling, 08-181, ¶ 44 (2008) (hereinafter, *Verizon-RCC Order*).

81 Clearwire, "Announcing the Future of LTE," *available at* http://www.clearwire.com/company/featured-story, *site visited* November 22, 2012.

82 Clearwire offers 4G wireless broadband services in 80 markets. ("Clearwire – Our Network," *available at* http://www.clearwire.com/company/our-network, *site visited* November 15, 2012.) Clearwire has announced that it would launch LTE service on its network in 31 cities in the first half of 2013. ("Clearwire TDD-LTE Network to Serve 4G "Hot Zones" in New York, San

- Excluding particular spectrum that can be used to support mobile wireless services (and, thus, should be included in the screen) benefits certain competitors by lowering their effective spectrum holdings, while it harms other competitors by increasing their spectrum as a percentage of the computed total. These differential effects on service providers distort competition among them, which harms consumers for the reasons described above. Every mobile wireless service provider has clear incentives to argue that the Commission should exclude as much of their spectrum holdings as possible from the screen. The Commission should be skeptical of such claims, and it should attempt to apply its policies as uniformly as possible.

- Although 112.5 MHz of EBS spectrum is *leased* (not owned) by Clearwire, this provides no basis to exclude such spectrum when evaluating the screen. We understand that Clearwire leases the EBS spectrum under long-term leases that we understand are longer than the typical spectrum lease (10-15 years).[83] As a matter of economics, such leases are assets that are relevant to assessing the feasibility of a postulated foreclosure strategy.

- The Commission has also cited to certain restrictions on the commercial usage of EBS, related to its use for educational purposes, as a reason to exclude the EBS spectrum from

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Francisco, Los Angeles, Chicago, Seattle and More," April 26, 2012, *available at* http://corporate.clearwire.com/releasedetail.cfm?ReleaseID=667820 *site visited* November 15, 2012.)

83 *In the Matter of Sprint Nextel Corporation And Clearwire Corporation, Applications For Consent to Transfer Control of Licenses, Leases, and Authorizations*, WT Docket No. 08-94, Sprint/Clearwire Public Interest Statement, at 40-41 ; South Carolina ETV Press Release, "ETV Commission Ratifies EBS Lease Agreements," Nov. 25, 2009 (announcing approval of 30-year lease of EBS spectrum to Clearwire), *available at* http://www.scetv.org/index.php/press/release/etv_commission_ratifies_ebs_lease_agreements, *site visited* November 15, 2012.

consideration.[84] Although EBS spectrum is subject to a mandatory minimum five-percent capacity reservation for educational uses,[85] this, at most, could justify excluding from the screen the percentage of the 112.5 MHz that is subject to such "hold-backs," not the remainder, which is available for Clearwire to use.

- Finally, although the Commission has cited to the fact that EBS licenses are site-specific and therefore have "white spaces" where no license is issued, this fact provides no basis to exclude EBS spectrum from the market-specific screen for those markets in which the EBS spectrum can be used.[86] Indeed, the FCC has previously counted spectrum bands with white spaces—such as the SMR band prior to the white-space auctions that converted its white spaces to market areas—as part of its spectrum cap.[87]

D. THE COMMISSION SHOULD NOT ADOPT SPECTRUM BAND WEIGHTING SCHEMES

86. Other than recognizing that some frequencies are not usable at all, the Commission should not adopt weighting schemes that attempt to declare some frequencies more important for competition than others when implementing the spectrum screen. Simply put, proposed weighting schemes are not well-founded, and their supporters evidence a lack of understanding of fundamental economic principles.

1. Dollar weighting schemes are severely flawed.

87. Some proponents of a new weighting scheme advocate the use of dollar weights that would give greater weight to spectrum that sold at a higher price per megahertz or that has a

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84 *Sprint Nextel-Clearwire Order*, ¶ 71.

85 47 C.F.R. § 27.1214(b); *Sprint Nextel-Clearwire Order*, ¶ 71.

86 *Sprint Nextel-Clearwire Order*, ¶ 71.

87 *See, e.g., CMRS Third Report and Order,* ¶ 8.

higher book value.[88] Although it might have a superficial appearance of being "market-driven," this proposal is based on deep misunderstandings of both the objective of competition policy and how markets operate.

88. The concern of competition policy is consumer welfare. To oversimplify somewhat, consumer welfare depends on outputs, not inputs. Hence, if the dollar value of spectrum license holdings are to be a useful measure of competitive conditions, then it is essential that there be a link between the value of spectrum license holdings and competition in the downstream, output market. Proponents of dollar weights have failed to put forth a valid explanation of this link. In the recent Verizon-SpectrumCo proceeding, Professor Cramton attempted to offer such a theory, but he confused harm to competitors with harm to competition. Specifically, his explanation of the link between competition and the concentration of "higher-value" (*i.e.,* lower-frequency) spectrum was as follows:[89]

> Unfortunately [Verizon Wireless's] resulting domination in the low-frequency spectrum is not healthy for competition. It means that Verizon can provide better depth of coverage (inside buildings) and better breadth of coverage (in less populated areas) at much lower cost than smaller rivals. Customers value the better coverage and many switch to Verizon.

Despite the claimed focus on the health of competition, the only harm identified here is the harm to *competitors* who ostensibly would find it difficult to compete with Verizon Wireless if it were

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88 Petition to Deny of Free Press, *Application of Cellco Partnership d/b/a Verizon Wireless and SpectrumCo LLC For Consent To Assign Licenses and Application of Cellco Partnership d/b/a Verizon Wireless and Cox TMI Wireless, LLC, For Consent To Assign License*, WT Docket 12-4, February 21, 2012 (hereinafter *Free Press Petition*), at 14-17; Declaration of Peter Cramton, February 20, 2012 (hereinafter *Cramton Verizon-SpectrumCo Declaration*), Exhibit C to Petition to Deny of T-Mobile, USA, Inc., *Application of Cellco Partnership d/b/a Verizon Wireless and SpectrumCo LLC For Consent To Assign Licenses and Application of Cellco Partnership d/b/a Verizon Wireless and Cox TMI Wireless, LLC, For Consent To Assign License*, WT Docket 12-4, February 21, 2012, ¶¶ 30-31.

89 *Cramton Verizon-SpectrumCo Declaration*, ¶ 24.

able to provide superior services at lower cost due to the characteristics of its spectrum holdings. Verizon Wireless's having better depth and breadth of coverage at lower cost would benefit consumers, even if it disadvantaged competitors.

89. Next consider how proponents of a value-weighted screen misunderstand how markets operate. The per-MHz, per-POP price of a spectrum license reflects a wide variety of factors, including: the geographic scope of the license; the presence of incumbent users; projections of wireless demand and the possibility of future license primary auctions at the time of sale; public policy restrictions placed on the use of the spectrum; and spectrum propagation characteristics. Figure 2, which recreates a chart generated by Anna-Maria Kovacs, shows the wide range of prices paid in Auction 73 for licenses to different blocks of spectrum.[90] Manifestly, differences in propagation characteristics alone cannot explain these differences in license prices.

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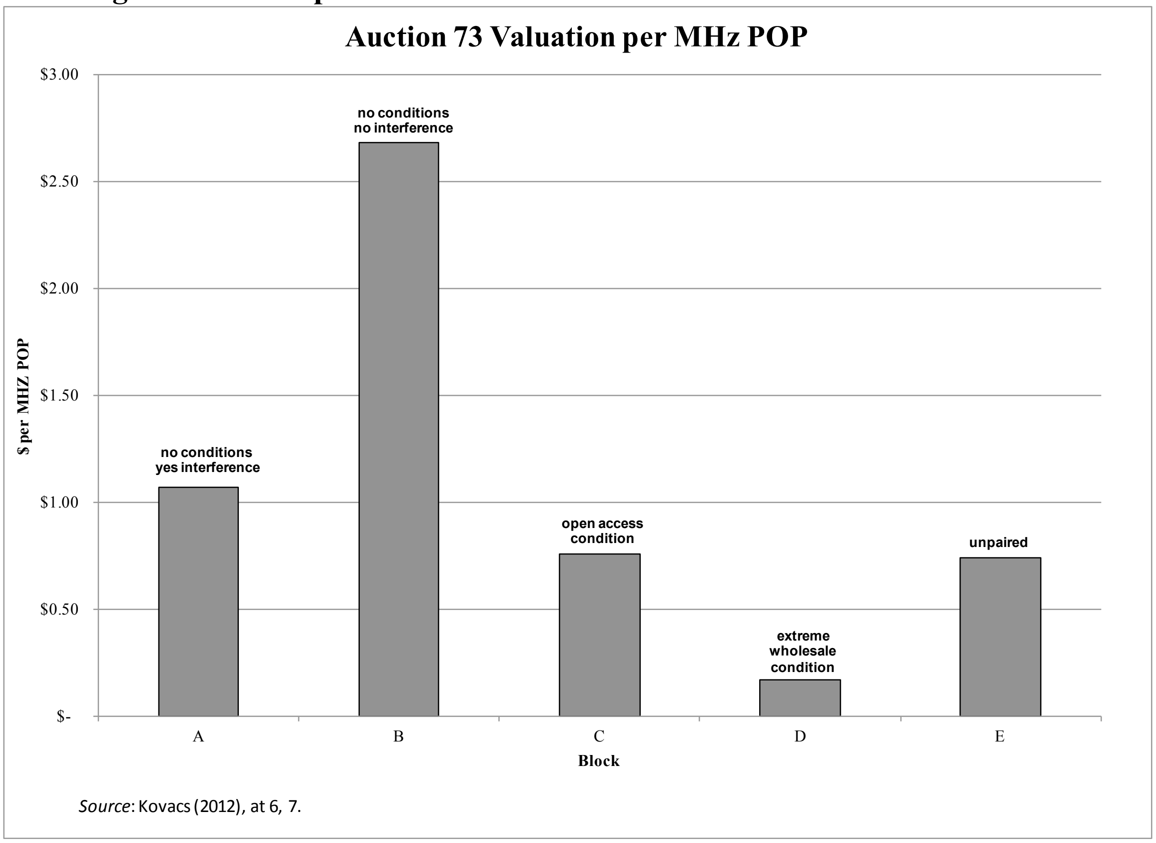
90 Anna-Maria Kovacs (2012), "Neutral Spectrum Auctions: Maximizing Proceeds and Consumer Benefit," Economic Policy Vignette 2012-2-13, Georgetown University, *available at* http://www.gcbpp.org/files/EPV/EPV_Kovacs_SpectrumAuctions_21312.pdf, *site visited* November 22, 2012.

Figure 2: A Comparison of License Prices for Different 700 MHz Blocks



90. In order for there to be any logic underlying the use of a dollar-weighted scheme, one must establish that the wide range of factors that drive license prices or book values all are somehow indicative of the resulting competitive conditions. Not only have proponents of a dollar-weighted screen failed to establish any such relationship, proper economic analysis clearly indicates that prices or book values are extremely poor indexes of competitive implications, as we now explain.

91. The following hypothetical example exposes the fundamental misunderstanding of markets inherent in calls for the use of a dollar-weighted screen. Suppose, *arguendo* that the only difference between two licenses was the dollar amount of investment in network infrastructure needed to attain a given network capacity. Moreover, suppose that the license for

one block of spectrum sold for $200 million and the service provider holding that license had to invest $800 million in network facilities to produce one million units of service, while the license for a second block of spectrum sold for $600 million and the service provider holding that license had to invest $400 million in network facilities to produce one million units of service. Either path leads to a competitor with the ability to supply one million units of service at a cost of one billion dollars.[91] A proper competitive analysis would recognize that these two paths to capacity are equivalent and that the two service providers are equally strong competitors. Yet proponents of a dollar-weighted screen would falsely assert that the supplier using the $600-million spectrum is necessarily of three-times greater competitive significance than is the supplier using the $200-million spectrum. Although this is a hypothetical example, the lesson is completely applicable to real-world markets: Proponents of dollar weighting fail to recognize that the production of mobile wireless services requires a mix of inputs and that any proper analysis would have to examine the full mix.

92. More broadly, a dollar-weighting scheme will systematically give too much weight to higher-priced spectrum rights whenever the price per MHz of a spectrum license in a given band tends to be inversely related to the cost of the necessary investment in associated network facilities. But this is exactly the relationship one should expect to see as the result of market forces in the sale of spectrum rights. In equilibrium, license prices will tend to adjust to equalize the total amount needed to purchase a license and make the associated investment in network

91 A full analysis of this example would consider any differences in the service providers' marginal cost curves. Doing so would not change the fundamental conclusion presented in the text that the dollar value of a spectrum license is a poor indicator of its competitive importance. Depending on the nature of network investment, the firm with the lower-value license could have lower marginal costs over a broad range of output levels than does the firm with the higher-value license.

infrastructure to achieve a given capacity, so that—all else equal—a license that requires more capital investment will sell for less. In the specific example above, for instance, a mobile wireless service provider would be indifferent between buying a license for $200 million and having to invest $800 million in network facilities, or buying a license for $600 million and having to invest $400 million in network facilities. When license prices equilibrate to reflect the costs of other inputs, *the relative prices of two licenses provide absolutely no information about the relative competitive importance of the two licenses*.[92]

93. In addition to the failings of dollar-weighted schemes described above, which are common to schemes based on license prices and schemes based on book values, each of these two types of dollar-weighted scheme has unique shortcomings of its own. For example, price-based schemes utilize weights reflecting market conditions at widely varying points in time, making the comparisons inherent in this type of weighting scheme suspect. And book-value-based schemes are subject to differences in the financial accounting judgments of various license holders. It is difficult to imagine that differences in accounting judgments provide a meaningful index of competitive conditions.

2. Other weighting schemes also are severely flawed.

94. Some parties have advocated other weighting schemes to capture differences that they assert exist in the utility of various blocks of spectrum in the provision of mobile wireless services, particularly those delivered using LTE. Proponents of weighting schemes based on differences in propagation characteristics overstate the disadvantages of higher frequencies while ignoring their advantages.

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92 Indeed, one of the factors that would affect the equilibrium prices would be the dollar-weighting scheme itself.

95. Consider schemes that give lower frequencies greater weight. In its recent application of the spectrum screen to the AT&T-Qualcomm transaction, the Commission departed from its long-standing approach of treating all relevant spectrum equally[93] and stated that it looked "more closely" at holdings of spectrum in bands below 1 GHz.[94] The Commission attempted to support its decision by saying that[95]

> Based on the record in this proceeding – and the Commission's analysis in the Fifteenth Annual Mobile Wireless Competition Report – we find that it is prudent to inquire about the potential impact of AT&T's aggregation of spectrum below 1 GHz as part of the Commission's case-by-case analysis.

96. Yet the Commission's claims in the AT&T-Qualcomm proceeding that building out higher frequencies was more costly are contradicted by the Commission's *Fifteenth CMRS Competition Report*. In that report, the Commission stated:[96]

> Although higher-frequency spectrum does not provide the same level of coverage or in-building penetration as lower-frequency spectrum, in some instances, *higher-frequency spectrum may be just as effective, or more effective, for providing significant capacity, or increasing capacity, within smaller geographic areas.* For instance, AT&T has noted that it cannot be assumed that lower

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[93] *Verizon-ALLTEL Order*, ¶ 69. ("Since the Commission first determined to evaluate potential spectrum aggregation of 800 MHz cellular spectrum, 800/900 MHz SMR, and 1.9 GHz broadband PCS spectrum for purposes of competitive review, it has not differentiated among these bands. Nor did we do so last year when we expanded the initial spectrum aggregation screen to include 700 MHz band spectrum. We decline to do so here with respect to the particular 2.5 GHz BRS spectrum or the 1.7/2.1 GHz AWS-1 spectrum that we find suitable for mobile telephony/broadband services.")

[94] *AT&T-Qualcomm Order,* ¶ 31.

[95] *AT&T-Qualcomm Order,* ¶ 49.

The Commission also asserted that

> Post-transaction, AT&T would hold a significant proportion of the available spectrum suitable for the provision of mobile voice or broadband services, particularly below 1 GHz spectrum, that has technical attributes important for other competitors to meaningfully expand their provision of mobile broadband services or for new entrants to have a potentially significant impact on competition. (*AT&T-Qualcomm Order*, ¶ 51.)

[96] *Fifteenth CMRS Competition Report*, ¶ 296.

> frequency bands will require fewer cells or be more economical to deploy because other factors also affect propagation – including the presence of large buildings in urban areas or other physical impediments. In addition, capacity enhancement technologies such as multiple-input and multiple-output (MIMO) may perform better at higher frequencies. [Emphasis added.]

97. Similarly, Eric Prusch, President and CEO of Clearwire has pointed out that the oft-touted propagation benefits of low-frequency spectrum can actually create interference problems when an increasing number of cells are required to provide adequate capacity (particularly in urban areas), and thus that the lack of such interference can be a benefit of high-frequency spectrum.[97]

98. As discussed above, if spectrum license holdings are to be a useful measure of competitive conditions, then it is essential to understand the link between spectrum license holdings and competition in the downstream market. The Commission's statement in the *Fifteenth CMRS Competition Report* and the statement of Mr. Prusch reveal that higher frequency spectrum may be *more* effective for generating output in dense markets, such as urban areas, in which the demand for mobile wireless services and, thus, the demand for spectrum allocated to mobile wireless services, is the greatest. Stated another way, a mobile wireless service provider facing a rival with 20 MHz of high-frequency spectrum could well face a stronger competitive constraint than if it faced a rival with 20 MHz of low-frequency spectrum because the former could have a greater ability to construct a cost-effective, higher-capacity network. Hence, schemes that give less weight to higher frequencies are misconceived.

99. Even if some of the concerns outlined above could be addressed, an attempt to assign differential weights to different spectrum bands would remain arbitrary. To result in a usable

[97] Erik Prusch, "Clearwire: The 4G Disruptor," Presentation at 4GWorld, October 29, 2012, at 8.

metric, the Commission would have to assign each spectrum band a value relative to all other bands. But even if one believes that a particular spectrum is "better" than another, there is no established metric for weighing the relative values—let alone one that would allow those to be updated to account for relevant technological change.

3. Any weighting scheme will face dynamic consistency problems.

100. There is also another problem with the use of weights. Presumably, the Commission would update the weights over time in response to technological developments. It would be possible that, due to innovation, certain spectrum became more suitable for the provision of mobile wireless service (at least as measured by the Commission's weighting scheme). A party with a license portfolio heavily weighted toward that spectrum might find itself suddenly over the threshold even though it had obtained no additional spectrum and even though technology was having the effect of increasing the overall pool of suitable spectrum (at least as measured by the Commission's weighting scheme). This anomalous property is indicative of broader problems with this approach.

E. The Commission Should Not Add Spectrum Utilization Requirements as Part of a Screen

101. As discussed in Section II.B.4 above, the expense of hoarding spectrum and the ability of firms to compete with small amounts of spectrum makes it unlikely that warehousing is an explanation for spectrum's being unused or not being used intensively at any particular point in time. If spectrum rights that could otherwise be sold appear to be unused, a more likely explanation is that obtaining spectrum rights and building out associated infrastructure are part of an interconnected, long-run investment plan. As such, not all spectrum rights may be used immediately upon their acquisition. It is critical to recognize that this lack of immediate use

does not mean that the spectrum is being "hoarded" or "under-utilized." Indeed, if one equated lack of immediate use with hoarding, then Leap Wireless, which has acquired spectrum in many CMAs in which it has yet to launch service, would be guilty of hoarding.

102. It is also critical to recognize the harms that would ensue if the Commission were to impose some sort of spectrum utilization requirement as a component of its spectrum screen. As noted above, it is well-accepted that market forces will generally result in more efficient allocation of resources than will rules imposed by regulators. The determination of whether a carrier is using spectrum in an appropriate way is a difficult and complex judgment not suited to determination by public policy bodies. For example, imposing a spectrum utilization requirement would likely have the effect of forcing mobile wireless service providers to use spectrum immediately. Rather than protecting competition and promoting consumer welfare, this outcome would harm economic efficiency and competition, to the ultimate detriment of consumers.

103. Such an outcome would harm competition and efficiency due to several aspects of the economics and engineering of large-scale cellular networks and the operation of spectrum license markets. First, it can take several years from the time spectrum is acquired to the time that a network can be brought up and running using that spectrum. Second, network infrastructure is expensive and long-lived. Third, it is costly to migrate consumers quickly from one network technology to another. Fourth, large spectrum licenses become available infrequently and with great uncertainty, which means that it can be economically rational for a firm to acquire spectrum licenses today with the intention of utilizing those licenses sometime in the future, rather than immediately. For all of these reasons, it is commercially prudent and economically

efficient to plan ahead. Appropriate long-term plans (*i.e.,* plans that make efficient use of resources to provide strong competitive offerings) often will involve periods were some assets may not appear to be fully utilized in the short run. Claims that all spectrum rights must be fully utilized immediately after acquisition make no economic sense.

V. REMEDIES

104. As the *NPRM* states, the Commission "may impose remedies, such as requiring divestitures of certain licenses, to address potential harms likely to result from a transaction or to help ensure the realization of potential benefits promised for the transaction."[98] In this section, we examine the implications of the principles developed in this Declaration for the determination of appropriate remedies.

A. BROAD CONCLUSIONS

105. Before turning to specific issues raised by the *NPRM*, we offer two broad conclusions with respect to remedies.

1. Remedies should be limited to addressing specific harms to competition from the transaction being evaluated.

106. In order to protect competition and promote consumer welfare, in those instances where transactions are deemed likely to harm competition, remedies should be tightly targeted to the specific competitive harms identified. Tight targeting is critical to avoid having the Commission's transaction reviews devolve into rent-seeking free-for-alls in which rivals and other interested parties seek to protect (or enrich) themselves rather than protect competition. Such rent-seeking free-for-alls would very likely harm consumers through two mechanisms.

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98 *NPRM,* ¶ 43 [footnote omitted].

- First, imposing remedies to transfer rents to other parties or to achieve Commission objectives that are unrelated to the competitive effects of a transaction is similar to imposing a transaction tax. Where the overall effect of a transaction is to promote competition and consumer welfare—as will often be the case in spectrum-market transactions—a policy of taxing transactions can discourage what would otherwise be beneficial transactions.

- Second, imposing poorly targeted remedies often acts as a tax on the provision of service, raising the marginal costs of providing service for the parties to the transaction. Such higher marginal costs can be expected to raise the prices that the parties charge to consumers, as well as to allow rival service providers to raise their prices due to the weakening of the parties to the transaction (via higher marginal costs).

107. The Commission's practice of inducing "voluntary" commitments is one form of a transaction tax. These voluntary commitments generally impose costs on the parties making them, and in practice, often have little relation to any credible theory of harm to competition resulting from the associated transaction. Although one might object that the Commission "accepts" rather than "induces" these commitments, as then-Commissioner Michael Powell compellingly stated:[99]

> …there is absolutely nothing voluntary in a regulatory relationship. Merging parties are not altruists. They accede to commitments solely in order to get regulatory approval or to accelerate the review. The government cannot, to my

[99] Commissioner Michael K. Powell, Before the Practising Law Institute, Washington, DC, December 10, 1998, "'Letting Go of the Bike' A Holiday Parable on Communications Mergers in a Season of Competition," (As Prepared For Delivery), *available at* http://transition.fcc.gov/Speeches/Powell/spmkp820.txt, *site visited* November 3, 2012.

> mind, defend a merger condition (irrespective of what it is or its propriety) on the supposition that it was voluntarily agreed to by the parties. One should be troubled that such "voluntary" conditions allow an administrative agency to evade judicial review of a government imposed restriction.

108. It should be noted that voluntary commitments are very different from fix-it-first actions (*e.g.,* preemptive divestiture of selected assets), which are often undertaken by parties before they consummate a transaction that will be subject to Commission review. In the case of fix-it-first actions, the voluntary actions address specific competitive issues that the Commission would have the authority to remedy if it could establish that there was, in fact, harm to competition due to these issues. In other words, done correctly, a fix-it-first approach satisfies the principle that, in those instances where transactions are deemed likely to harm competition, remedies should be tightly targeted to the specific competitive harms identified.

2. The Commission should draw on well-accepted antitrust principles and practices.

109. There is long-standing experience with remedies at the federal competition agencies that should be brought to bear on the evaluation of remedies in spectrum aggregation transactions. In the case of divestitures in particular, there are well-accepted antitrust principles that should apply with equal force to divestitures designed to solve spectrum aggregation issues. For example, the standard antitrust practice of case-specific review of whether a potential divestiture recipient is strong enough to provide viable competition should be applied to spectrum divestitures.

110. As another example, there should not be undue restrictions on what spectrum can be divested, such as a restriction that the spectrum must come from that which was obtained in the associated transaction. Rather, any divestiture that solves the specific competitive concerns

motivating the remedy should be sufficient.[100] Excessive restrictions on the spectrum to be divested may, for example, prevent efficient transactions in which firms obtain larger swaths of contiguous spectrum in exchange for more disjointed spectrum holdings.

B. Specific Issues Related To Divestitures

111. Turning to specific issues raised by the Commission, the *NPRM* seeks comment on the general value of divestitures as a remedy as well as on several more-focused points regarding their use.[101]

112. The *NPRM* asks about the appropriate geographic scope and the range of assets to be included in a divestiture.[102] The well-accepted antitrust principles and practices described above, as well as the economic principles discussed throughout in this Declaration, support the following conclusions:

- If the competitive harms are triggered solely by the excessive aggregation of spectrum, then a divestiture consisting solely of spectrum should be sufficient.

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[100] In a related context, the Department of Justice has stated that a divestiture should be acceptable if it solves the competitive problem posed by a merger, regardless of which firm's assets are divested.

> In a merger between firm A and firm B, the Division generally would be indifferent as to which firm's assets are divested, despite possible qualitative differences between the firms' assets, so long as the divestiture effectively preserves competition. However, if the divestiture of one firm's assets would not preserve competition, then the other firm's assets must be divested. For example, if firm A's productive assets can operate efficiently only in combination with other assets of the firm, while firm B's productive assets are free-standing, the Division likely would require the divestiture of firm B's assets.

(U.S. Department of Justice Antitrust Division (2011), "Antitrust Division Policy Guide to Merger Remedies," at 8.)

[101] *NPRM,* ¶¶ 44, 45, and 48.

[102] *Id.,* ¶ 44.

- If other, non-spectrum assets are included in the divestitures, which make it more likely that there would be vigorous competition in the affected local market, the Commission should require smaller spectrum divestitures.

- In instances where spectrum aggregation is deemed to cause competitive harm, any divestiture should be limited only to the specific local market(s) in which competitive harm is deemed likely to occur. Spectrum licenses are not fungible across geographic areas. If a transaction is found likely to harm competition in a local market, then divesting spectrum license holdings in another local market will not remedy those prospective competitive harms.

113. The *NPRM* also suggests that the Commission is concerned about "piecemeal divestiture."[103] As a general matter, there is nothing inherently anticompetitive about piecemeal divestitures. The identity of the service provider that would most value the divested spectrum rights (and could be expected to use it to compete) may well vary across local markets. Even if the objective of the divestitures were to strengthen particular service providers' abilities to compete on a national basis (a concern that risks confusing protecting competitors with protecting competition), it would not follow that all divested spectrum rights should go to a single service provider. In addition, a clustered approach, which would require divestitures of population centers to allow a prospective purchaser to offer a viable service, confuses a spectrum transaction with an outright merger—in the case of pure license transaction, the concern is with possible foreclosure of competition, not the loss of an existing competitor.

103 *Id.,* ¶ 44 [footnote omitted].

114. If the Commission is concerned that a service provider might strategically divest spectrum rights in a way that would minimize the use of those rights to compete against the provider, there are better ways than prohibiting piecemeal divestiture to address the concern For example, the Commission could insist that any divestiture had no restraints on further transactions, so that the party receiving the divested spectrum rights would have the ability to transfer those rights to another entity if it were willing to pay more. In this way, divested spectrum rights would ultimately go to the user placing the highest value on them. Holding an open auction for the divested spectrum could also serve this purpose. In contrast, requiring divestiture to rural or mid-size carriers would not protect competition, but rather would reward rent seeking and serve as a tax on transactions, reducing the likely amount obtained from the divestiture sales.

115. The *NPRM* also asks whether the criteria for divestitures should vary by frequency band.[104] For all of the reasons discussed in Section IV.D above, divestitures should not be differentially required depending on the frequency band used.

116. Lastly, the *NPRM* seeks comment on the use of divestiture remedies for spectrum rights acquired through Commission auctions.[105] As a general matter, our conclusions with respect to the use of divestiture remedies apply with equal force to auctions transactions as to other forms of license acquisition or transfer.

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[104] *Id.,* ¶ 45.

[105] *Id.,* ¶ 48.

VI. ANY REVISION TO ATTRIBUTION RULES SHOULD BE APPLIED IN A CONSISTENT, FORWARD-LOOKING WAY TO ALL SPECTRUM HOLDINGS

117. In the *NPRM*, the Commission also seeks comment on revision to its attribution rules and asks whether it should grandfather current spectrum holdings under any revised policy.[106] We reach the following conclusions.

118. First, the attribution rule should be part of a screen, not a hard cap. Any bright-line attribution rule that is a component of a rigid ceiling on spectrum holdings would necessarily be arbitrary and would not serve well to protect competition and consumer welfare.

119. Second, in the context of a spectrum screen, the Commission should not require parties to defend (or divest) existing spectrum holdings that would, upon application of the new attribution rules, cause the screen to be exceeded. Rather, the Commission should apply its attribution rules uniformly on a *going-forward* basis.

120. The first part of this conclusion follows from the principle that spectrum policy should not discourage efficient investment and innovation. A policy that called into question spectrum rights that were lawfully obtained under the Commission's then-existing spectrum aggregation policies could be enormously disruptive and—by creating uncertainty about the future application of retroactive rules—would very likely undermine investment incentives.

121. The second part of this conclusion follows from the overarching principle that spectrum aggregation policy should protect undistorted competition. Any changes in the Commission's policies should be applied uniformly on a going-forward basis. That is, future transactions should be evaluated according to the Commission's revised policies without regard for how the

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106 *Id.,* ¶¶ 42 and 49.

parties reached their present market positions. To do otherwise would be to favor certain service providers (based on their history of past spectrum rights acquisitions) in a manner that is not necessary to preserve incentives for efficient investment and innovation but that would distort competition.

VII. CONCLUSION

122. If it chooses to do so, the Commission can use its policies regarding mobile spectrum holdings to promote consumer welfare by: service (i) giving providers strong incentives to offer consumers the mobile wireless services they desire at attractive prices; (ii) stimulating investment and innovation in mobile wireless service ecosystems; and (iii) facilitating increased productivity of business enterprises that use wireless communications and employ those consumers. The key to doing so is to adopt policies that protect undistorted competition, not policies that further the interests of specific mobile wireless services providers by handicapping or, in effect, taxing their rivals.

I declare, under penalty of perjury, that the foregoing is true and correct.

Mark A. Israel

Mark Israel

November 28, 2012

I declare, under penalty of perjury, that the foregoing is true and correct.

Michael L. Katz

Michael L. Katz

November 28, 2012

APPENDIX 1: QUALIFICATIONS OF MARK A. ISRAEL

123. I am a Mark A. Israel. I am a Senior Vice President and Managing Director in the Washington, DC office of Compass Lexecon, an economic consulting firm. From August 2000 to June 2006, I served as a full-time member of the faculty at Kellogg School of Management, Northwestern University. I received my Ph.D. in economics from Stanford University in 2001.

124. At Kellogg and Stanford, I taught graduate level courses covering topics including business strategy, industrial organization economics, and econometrics. As an economist, I specialize in the economics of industrial organization, which is the study of imperfectly competitive markets and includes the study of antitrust and regulatory issues, as well as the economics of information and insurance markets. My research has been published in leading economics journals including the *American Economic Review,* the *Rand Journal of Economics,* the *Review of Industrial Organization,* and *Antitrust Source*.

125. I have worked in consulting at Compass Lexecon since 2006, where I have applied theoretical and empirical methods to the analysis of mergers and related antitrust issues, intellectual property, class certification, and damages calculations. My work has involved a range of industries including wireless communications, airlines, railroads, cable television, consumer beverages, financial markets, pharmaceuticals, publishing, and various high technology industries. My consulting work has included drafting expert reports, declarations, and affidavits submitted to multiple government agencies and federal courts relating to mergers, joint ventures, and other issues in antitrust.

APPENDIX 2: QUALIFICATIONS OF MICHAEL L. KATZ

126. I am Michael L. Katz. I hold the Sarin Chair in Strategy and Leadership at the University of California at Berkeley. I hold a joint appointment in the Haas School of Business Administration and in the Department of Economics. I have also served on the faculty of the Department of Economics at Princeton University and the Stern School of Business at New York University. I received my A.B. from Harvard University *summa cum laude* and my doctorate from Oxford University. Both degrees are in Economics.

127. I specialize in the economics of industrial organization, which includes the study of antitrust and regulatory policies. I regularly teach courses on microeconomics and business strategy. I am the co-author of a microeconomics textbook, and I have published numerous articles in academic journals and books. I have written academic articles on issues regarding the economics of network industries, two-sided markets, systems markets, and antitrust enforcement. I am a co-editor of the *Journal of Economics and Management Strategy* and serve on the editorial boards of *Information Economics and Policy* and the *Journal of Industrial Economics*.

128. In addition to my academic experience, I have consulted on the application of economic analysis to issues of antitrust and regulatory policy. I have served as a consultant to both the U.S. Department of Justice and the Federal Communications Commission on issues of antitrust and regulatory policy. I have served as an expert witness before state and federal courts. I have also provided expert testimony before a state regulatory commission and the U.S. Congress.

129. From January 1994 through January 1996, I served as the Chief Economist of the Federal Communications Commission. I participated in the formulation and analysis of policies toward

all industries under Commission jurisdiction. As Chief Economist, I oversaw both qualitative and quantitative policy analyses.

130. From September 2001 through January 2003, I served as the Deputy Assistant Attorney General for Economic Analysis at the U.S. Department of Justice. I directed a staff of approximately fifty economists conducting analyses of economic issues arising in both merger and non-merger enforcement. My title as Deputy Assistant Attorney General notwithstanding, I am not an attorney.